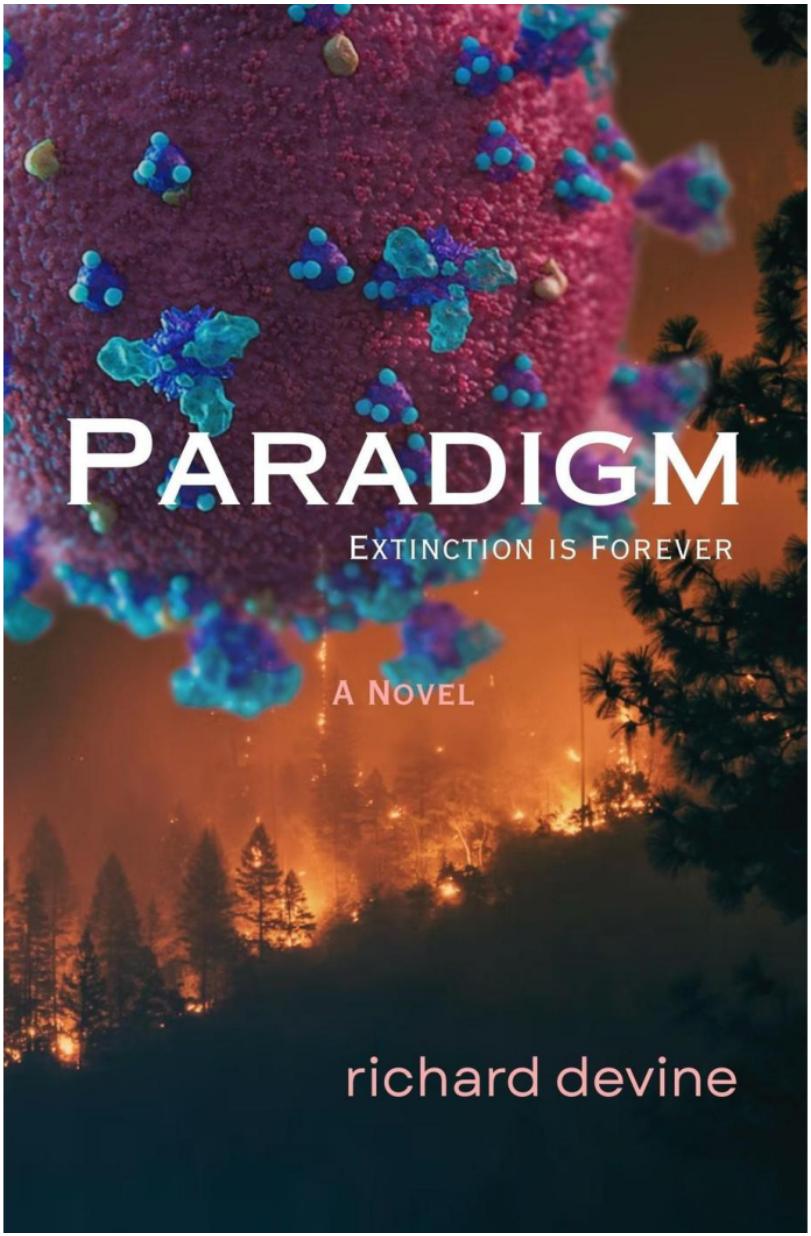

PARADIGM
EXTINCTION IS FOREVER
A NOVEL
richard devine

Paradigm

This is a work of fiction. Similarities to real people, places, or events are entirely coincidental.

PARADIGM

First edition. April 25, 2026.

Copyright © 2026 Richard Devine.

ISBN: 979-8234030030

Written by Richard Devine.

Table of Contents

Title Page

Copyright Page

Paradigm

Dedication

Part 1 | Pandemic

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

Part 2 | Symbiosis

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

Part 3 | Warming

40

41

42

43

44

45

46

47

48

49

50

51

52

Part 4 | Reckoning

53

54

55

56

57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
Part 5 | Paradigm
72
73
74
75
76
77

78

79

80

81

82

83

84

85

86

87

88

89

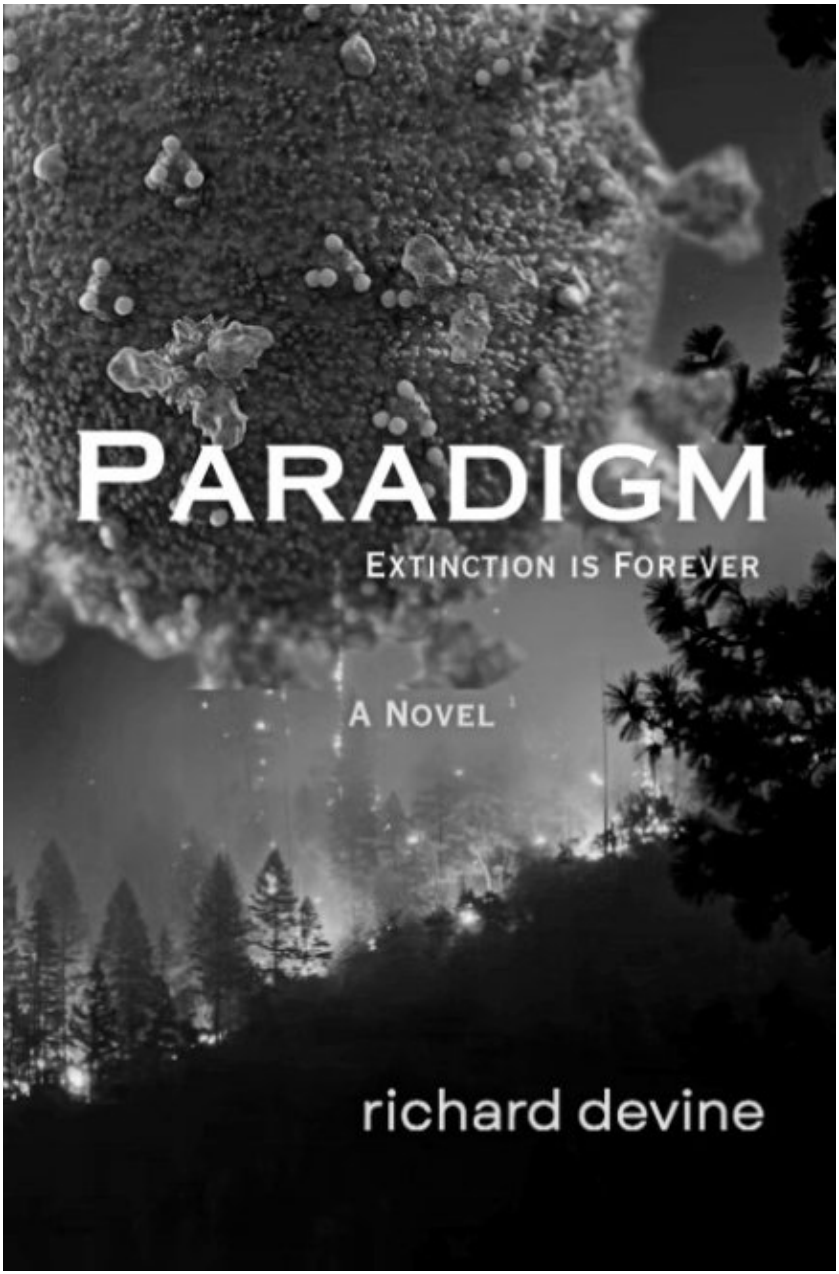
90

91

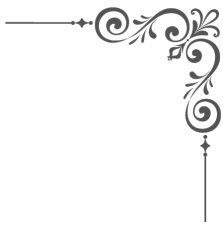
92

93

Acknowledgements


PARADIGM
EXTINCTION IS FOREVER
A NOVEL
richard devine

Raindrop Press
Copyright © 2026 by Richard Devine
All rights reserved.
No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except as permitted by U.S. copyright law. For permission requests, contact the publisher or author.
Printed in the United States of America
Raindrop Press ISBN 9798234030030
This novel is a work of fiction. While the narrative incorporates real historical events, public figures, and documented scientific records or political proceedings, or publicly reported events to provide context, the story and its primary characters are products of the author's imagination. References to real people, including public officials and historical figures, are drawn from publicly available information and are intended solely to provide a factual backdrop. No real person has been depicted as a character in this story, and no dialogue or fictional actions have been attributed to any real individual. The characters and events of the narrative itself are entirely fictional, and any resemblance to real persons, living or dead, is purely coincidental. When historical events are interpreted or contextualized, those interpretations reflect the author's own views and conclusions drawn from publicly available sources.
Book Cover Design by Richard Devine
Edition 1 2026



Dedication

To the **Indigenous Peoples** of the world: the original and enduring stewards of our Mother Earth.

We honor your sacred, reciprocal relationship with the land and the ancient wisdom you carry—a deep understanding of how to live in balance within the planet's finite boundaries. Your insights are not relics of the past but essential guides for our collective survival.

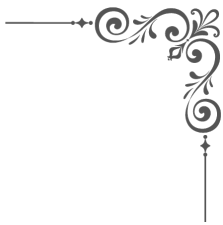
We recognize that a sustainable future is impossible without your leadership. It is critical that your voices are not only heard but centered in every **COP deliberation** and climate negotiation. You deserve more than a mere seat at the table; you hold the keys to the governance of a world in harmony.

This book is dedicated to your resilience, your sovereignty, and your unwavering commitment to protecting the life that sustains us all

Man has always been an arrogant creature. From the moment we emerged from the shadows of evolution, standing upright, we took it upon ourselves to be the masters of our destiny. With each step we moved on, ever forward, seldom looking back at the path of destruction we left behind us. The answers for our problems would come tomorrow. Tomorrow, always tomorrow. Somehow, they seemed safer there. And so, we piled them up, one on top of another, as if doing so would protect us from the inevitable. But one thing that everyone seems to forget is tomorrow always comes.

Brad Mirman *Absolon* (2003)

Paradigm

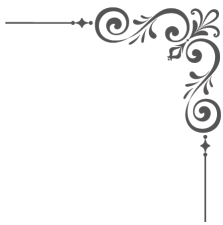


Part 1

Pandemic

In our superior mind-set, we think of our species as being largely in control. But to understand the true biologic sense of the power of microbes, we must never forget that we are the ones trying to anticipate and respond to their evolution, not the other way around.

Michael Osterholm, *Deadliest Enemy: Our War Against Killer Germs*



1

13 March 2027 Saturday
Dhaka, Bangladesh

The boy was sick.

Dalim was 3 years old. On six out of seven mornings each week, his mother, Tanisha, would drop him off at a daycare center while she went to work at one of Dhaka's 1100 garment factories. There, she would spend twelve hours a day, hunched over an old lockstitch sewing machine, piecing together clothing for retail giants like Target and Walmart, for 12,500 Taka, about $113 a month - $26 a week.

A few days ago, a staff member at the daycare center called Tanisha to tell her that Dalim was not feeling well. He was complaining of a headache, and he was showing symptoms of a cold – a runny nose and a little cough. The staff member thought it best that she come to the center and take him home. Since it was then 3:45 in the afternoon and Tanisha wouldn't be able to leave to pick Dalim up until 6 pm, she asked if they could watch him a little longer. She would be there by 6:20 pm, she promised. The daycare staff member told her that it would be fine.

Tanisha arrived around 6:23 pm. She was told that Dalim appeared to be feeling a little better and that he was in the public area playing with the other children. Tanisha apologized for being late and went straight to her son. She kneeled down in front of him, pushed aside his hair, and felt his forehead. It was a bit warm, she

thought, and she asked him how he felt. Dalim said his head hurt. Tanisha promised him he would be fine. They would go home, she told him, and she would warm up some of that soup he liked so much. She then picked Dalim up in her arms, kissed him on the cheek, said goodbye to the staff, and carried him out to the car. After buckling her son into his car seat, she went around to the other side, got in, buckled herself in, started the engine, and drove home to their apartment.

The next morning, Dalim's fever was 101.6F. Tanisha was concerned. The runny nose and cough had become worse, and he was developing some congestion. His breathing was more labored, and he still had a headache. Tanisha called the pediatrician, but because it was Sunday, the call went directly to the answering service. She left a message and waited for a call back.

By 2 pm, she had not heard back from the pediatrician, and Dalim was having more difficulty breathing. His cough was now coarse and seemed to be coming from deep in his chest. He had begun to wheeze, and his breathing was more labored. His temperature was 102F. Tanisha was now worried and decided to call the local clinic. There was no answer - just a recorded message saying the clinic was closed after 2 pm on Sundays and, if it was an emergency, she should "please hang up and go to the nearest emergency room or call 999 for assistance."

Tanisha knew from firsthand experience how unreliable the 999-emergency service was, especially in Dhaka's poorest neighborhoods. Less than three weeks before, an elderly neighbor had nearly bled to death from an accidental fall while waiting for an emergency vehicle to show up. Fortunately for the old man, Tanisha was able to get the bleeding under control and drive him to the emergency room. First responder emergency services never showed up.

That sort of thing happened all too often. Traffic through the slums was challenging at the best of times - vehicles broke down, and skilled medics were hard to find. Sometimes it just wasn't important enough to send help.

Tanisha bundled up Dalim, strapped him into the car seat, and sped off to the hospital. When she arrived at the emergency room, she was near panic. She was a single mom, and this was her first child. Dalim's father had left shortly after his birth, saying he couldn't handle the responsibility, and Tanisha had been raising

Dalim largely by herself. Though her mother and father did not live far away, her mother was not well enough to help.

Tanisha rushed into the ER, Dalim tightly held to her breast, located the front desk, and pleaded to see a doctor. The attendant took her information and, noticing the condition of the boy, called for a doctor. Within a few minutes a resident appeared, looked at Dalim, and directed Tanisha to follow him back to the examination area.

Dalim's temperature had risen to 102.1 degrees - he was very congested and having greater difficulty breathing, but the resident assured Tanisha that Dalim was not in any immediate danger. He probably had a bad cold or possibly RSV. Both conditions were treatable. They had been seeing more cases lately. He ordered a nasal swab, oxygen saturation test and a chest x-ray, and admitted Dalim for observation and treatment.

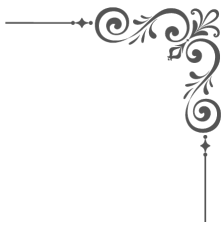
Tanisha called her mother to let her know Dalim was sick. Her mother wanted to come to the hospital, but Tanisha assured her Dalim would be fine and would probably be discharged in a day or two, and there was no need for her to come. Tanisha told her mother she would be staying there with Dalim and promised she would call if there was any change. That seemed to ease her mother's fears.

After getting off the phone with her mother, Tanisha's first thought was her job. She'd have to call and let her employer know she wouldn't be able to make it in to work in the morning, and she worried how sympathetic her employer would be. Times were difficult, and there were plenty of desperately unemployed women in the city ready and able to take her job. "It is what it is," she thought, "and called anyway.

By the next day Dalim's condition had stabilized, but he was still congested and having difficulty breathing. He was diagnosed with RSV - Respiratory Syncytial Virus, a common respiratory illness of young children. The doctor assured Tanisha that the disease was not considered serious, and usually resolves itself within a few days at home but that, in some cases, a short hospitalization is required to help the child fight off the disease. He said Dalim's temperature had remained elevated, at 102.1. He was given additional oxygen for the developing congestion, and IV fluids. Because his condition had not improved, the doctor decided to keep Dalim overnight.

On the fourth day, however, Dalim's condition worsened. His

temperature spiked to 103.7. He developed severe bronchiolitis and a secondary infection of pneumonia. Despite all interventions by the hospital staff, Dalim passed away.



2

17 March 2027 Wednesday
Helena, Montana, USA

Cathy Lochridge called out to her husband, Mark, from another room. “Mark, will you get that? It’s probably Stephanie. The phone’s on the coffee table in the living room.”

Senator Mark Lochridge was the senior United States Senator from Montana, the second-youngest Senator ever elected from his state. His family went back a long way in Montana and had deep ties to Montana’s coal mining industry. His great, great, great-grandfather founded the Rosecreek Mining Company in 1888 and made a fortune selling coal to the Montana, Wyoming, and Southern Railroad. By the time Mark was born, his family was worth $500 million and deeply embedded in the state’s energy industry and politics.

Mark’s grandfather, Grayson, first entered the political arena as a Helena Town Commissioner and then won a seat in the Montana State Senate as a Republican. Grayson had higher political aspirations for his son, Mark Sr. and, using his money, power, and influence in the mining industry, as well as his political connections, he won a Senate seat for his son in the U.S. Congress. Mark Sr. proved to be a cunning and powerful ally to the state’s coal, oil, and gas industry until his death in 2007.

Mark, Mark Sr.’s son, graduated from Montana State University with a Bachelor’s degree in Business Administration. He went on to

get his MBA in Economics from Montana State, then decided to go into politics after Mark Sr. passed away unexpectedly from a heart attack. Mark was elected to the U.S. Senate, taking his father's old Republican seat in 2008. Once in, he reassured fossil fuel executives that he would continue to support his father's energy policies. With their help, he easily won re-election three more times.

Mark met Cathy when they were undergraduates during Mark's stint as president of the MSU College Republicans. Cathy was studying Corporate Accounting. They hit it off right away, Mark said, finding much in common, particularly their views on politics, energy security, and states' rights, especially as it applied to the mining of minerals and natural resources. Cathy was the one who convinced Mark to go after his father's Senate seat and was the driving force behind Mark's campaign for the Senate, serving as his campaign manager and adviser.

Mark spent most of his time in Washington, flying home to Helena on his private jet as often as his schedule would permit. He and Cathy lived in a 12,000 square foot home on the Lochridge family compound, a 35,000-acre spread, southwest of Bozeman, Montana, on the Ruby River.

Mark chaired the Committee on Energy and Natural Resources and was also active on the Appropriations Committees for Interior and Environment, Transportation, Housing, and Urban Development, the Finance Committees for Energy, Natural Resources and Infrastructure, Healthcare, and International Trade. His strong position supporting the development of Montana's natural resources, including timber, natural gas, coal, and oil, his support for the extension of the Keystone pipeline, and rejection of climate science (calling it unsupported by the available data), earned him accolades (and substantial gifts) from the fossil fuel industry.

Mark and Cathy had one daughter, Stephanie, who was unplanned but became the light of their lives as she grew up. Stephanie followed in her father's collegiate footsteps, earning an MBA in Business Administration at MSU. She married her high school sweetheart, Andrew Hartmann, a nice, laid-back, easygoing sort of guy, who, along with his brother, owned a trucking company in Helena. His brother, Mike, ran most of the company's financial day-to-day business operations while Andrew handled trucking schedules. He made Stephanie very happy, but lacked the ambition

Mark and Cathy thought Stephanie deserved in a partner. Still, Andrew was evidently good to Stephanie, so Mark and Cathy accepted him into their family. Stephanie was now pregnant with their first child, a boy. Mark and Cathy were ecstatic about the impending arrival of their first grandchild.

Mark found Cathy's cell phone on the coffee table and picked it up. "Hello."

"Hello, Mark? This is Andrew."

"Hello, Andrew," Mark returned the greeting. "How is Stephanie doing?"

"She's ready. It's time. We're leaving now for St. Peter's in Helena."

"Alright, Andrew, thanks. We'll see you there as soon as we can."

"You'll probably beat us there, Mark. You taking the helicopter?"

"Yes, it's fueled up and waiting."

"OK, got to go. See you there." Andrew hung up.

Mark put the phone back on the table just as Cathy entered the room, adjusting an earring.

"That was Andrew. They're leaving now to go to St Peter's."

"We'll probably get there before they do," Cathy quipped.

"That's what Andrew said..." Mark smiled. "You ready?"

"Yes. The bags are all on board."

"Juanita!" Marked called out to their maid. "Juanita!" He called out again, impatiently, a little louder.

"Yes, sir, Mr. Mark." The maid appeared from another room.

"Juanita, we're leaving for the hospital now. We'll be back in a few days."

"Yes, Mr. Mark. Please tell Ms. Stephanie we are all happy for her... and congratulations."

"We will," Cathy replied. She picked up her phone off the table, and she and Mark walked out.

3

19 May 2027 Wednesday
Canberra, Australia

Dr. Gary Sanders, Chief Medical Officer for the Australian Department of Health and Aged Care (ADHAC), the public health arm of the Australian government, sat at his desk looking through the latest reports coming in from around the country.

He was just shy of forty years old, but his eyeglasses, with dark brown, almost black frames, gave him a more seasoned look. He was athletic, with straight, dirty blond hair, which he rarely coiffed more than just a quick run through with his fingers. He had an aversion to business clothes, usually opting to wear a T-shirt, jeans, and sneakers, a trait his superiors found irritating. On this particular day, he was wearing a blue Life is Good shirt, the one with Jake and Rocket wearing matching masks.

It was the start of the flu season in the southern hemisphere, and he was about to give his first press briefing of the season.

As he studied the numbers, nothing really jumped out, but there appeared to be a subtle change in the pattern of RSV infections emerging. The number of hospitalizations relative to the overall number of cases seemed a little higher than in previous years. He wasn't sure it meant anything yet. It was way too early in the season to tell. And there was too little data to draw any conclusions.

But, still... it seemed unusual. Something to watch, he thought to himself.

There were some in the administration, mostly career politicians, who considered Dr. Sanders too young and inexperienced to hold down the job as CMO. That's how they tried to portray it, anyway. In reality, they were irritated that they hadn't been able to get him on board, to "see the big picture," to be a team player. He was an asset alright, smart, intuitive, and methodical about his work. But he was apolitical. He abhorred and rejected partisan politics. In Gary's mind, politics had no place in science. You made decisions based on hard scientific evidence, not who the current Prime Minister was, or what the optics looked like. His job was to keep people safe, not push the party line.

Gary had earned his PhD in Public Health at the University of Sydney at age 22, one of the youngest to do so. He was a passionate and dedicated health professional, an epidemiologist by training, with fifteen years experience in infectious diseases, most of it in the field, in difficult places, like East Africa, Pakistan, India, and western Asia. It was tough work, requiring focus and, not only attention to detail, but the ability to see the wider view, the relationship between environment, host, and disease. There was no room for politics in the equation.

It was during those years that he had had an epiphany of sorts, one that completely changed the way he looked at life. It came to him in a rush one day, when he least expected it. A visceral, almost spiritual, understanding of how all of life on Earth fits together. One big interconnected system. Nothing happened in isolation. Everything that happened on Earth had an effect on everything around it. The Earth *really was* one big system. It was mind-blowing.

When he first joined the ADHAC, as Chief Health Officer for New South Wales, during the initial stages of the Covid19 Pandemic in 2022, Dr. Sanders believed he could make a difference by educating not just the public, but politicians as well, applying the systems approach to healthcare. He was an idealist and an optimist back then, and often quipped that "you had to be an optimist to survive government service." Even though politics was ruled by ideologies, subjectivity, selfishness, and greed, he believed science was impartial and neutral. And regardless of party affiliation and political ideology, government officials would still accept science, especially when it came to healthcare and medicine. It was fact-based and not subject to self-serving interpretations. It could

therefore serve all the people equally, regardless of political affiliation.

But reality soon caught up to him. The disastrous handling of the Covid Pandemic taught him that facts and truth meant nothing to politicians who wanted to push their own agendas. He found that, instead of politicians reassuring the public that science would keep them safe, he watched as those in power played upon the fears and ignorance of the public, sowing doubt and mistrust in established scientific truths, and manipulated data to achieve their own selfish political goals.

By the time he moved over to the cabinet-level CMO position after his predecessor left in early 2024, he was already disillusioned, but still determined to be impartial and transparent. But that often led him to be at loggerheads with the political leadership. To continue serving the public, he had to learn to pick his battles, a tactic that annoyed him greatly.

Dr. Glenn Harding, Dr. Sanders' Assistant, poked his head in the doorway. "Ready, Gary?"

Dr. Sanders looked up, mumbled something, then looked back at one of the reports. He flipped through the pages, back and forth, double-checking to make sure he read it right. He stared at the numbers again, then got up from his desk. "Ready. Let's get this over with." This was the least favorite part of his job. He used to be more comfortable with press briefings, especially before Covid, but since then, things had decidedly gone downhill. You had to be more careful now what you said and how you said it. You had to pick your words carefully. People were quicker now to jump to conclusions and make assumptions that weren't based on the facts.

"Something in the reports bothering you?" Dr. Harding asked as they made their way down the hall. "You had that look in your eye. Should we be worried?"

"Not sure yet. I would like this season to be as quiet as the last one, though." He was keeping his unease to himself for now. "I'd like to get some fly fishing in this year. Maybe a little hiking and kayaking. Great stress relievers."

They turned another corner and started down the hall toward the briefing room.

"That's something we could use a lot more of. Never used to be this way. Everything is getting so damn political. You wouldn't think people would be taking sides on medical issues."

“You wouldn’t think so,” Dr. Sanders agreed.

The two doctors turned and entered the press room along with a few other staff members. Dr. Sanders immediately stepped up to the podium and placed his papers in front of him.

“Good afternoon,” he started. The last time he had to do this was during a flu outbreak in 2025. It was then that he was seen almost daily and became the symbol of government measures to control the spread of a new strain of influenza. He achieved some measure of notoriety during those years – not all of it good.

“Thank you for coming.” He paused and looked around. The room was about half full, many seats still empty. Only the reporters specializing in medical news were there for the briefing. “Well, let’s get right to it. We’re watching a developing situation right now... RSV season is beginning a bit earlier this year.

“As you all know, RSV, Respiratory Syncytial Virus, is a common respiratory virus similar to pneumonia. It can be highly contagious, and we usually see seasonal outbreaks every year, starting in late March and going through June. It affects young children up to the age of about two or three, but can also affect older individuals who are immunocompromised. Although it spreads quite easily, it is generally not serious. Most cases resolve themselves in a week or so.

“That being said, we are seeing cases starting a bit earlier this year – around mid March rather than late March or early-April – and we saw a slight uptick in early-May. The earliest cases reported were from Brisbane, near Victoria Point, and Redland Bay. There have also been scattered reports of RSV, as well as flu, in Southport. Clinics in Newcastle and Sydney are also reporting cases of RSV and flu... as well as some Covid. The uptick and timing is a little unusual but not out of the ordinary. We don’t expect anything approaching the outbreaks we saw in 2019 or 2022. We’re following the cases closely and also monitoring the progression of flu season, and we’ll provide updates to you as necessary.”

Sanders saw a hand go up. “Yes?”

“Do you know why the cases are up this year. Should we be concerned?”

“I wouldn’t really read anything into the small uptick we’re seeing right now. We do think that many of the precautions people have been taking over the past few years... since Covid19, really... have greatly reduced exposure to RSV, and that means people have

fewer antibodies to RSV built up and, as a result, that has led to reduced immunity to the disease. That's natural."

Dr. Sanders hated not being fully transparent with the reporters, holding back information. That wasn't his style, but at the same time, he wasn't one hundred percent sure, either, that there was something more worrisome going on, and so holding back until he knew more was the right thing to do. Maybe he could just add a little caveat.

"There may be other associated reasons for the increase, and there are a number of studies that are ongoing to get a better understanding of the underlying causes."

"Should we be covering up?" asked the reporter from The Australian.

"I think that, for now, taking normal precautions, like washing hands, wearing a mask if you are older or have respiratory issues, or you're immune-compromised, would be enough. We don't think that anything more is necessary at this time."

After a short pause, Dr. Sanders added, "If you have an infant or young child up to four or five years old, I would recommend just limiting exposure for now. And be aware of the symptoms of RSV. If your child shows any of the symptoms, like a runny or stuffy nose, coughing or sneezing, sore throat or headache, or an uptick in fever, and the symptoms don't go away in a few days, see your pediatrician."

The reporter from The Australian asked if there was a vaccine for RSV.

"No, not yet, Ms. Campbell." Dr. Sanders replied. "The World Health Organization, as well as the global health care system, is focused on that end and considers that a priority. There are several vaccines currently in development, and we're optimistic that one will be available in the next few years."

"Yeah, right now there's no rush... no money in it," Sara Campbell, the reporter from The Australian, mumbled to no one in particular. Then she raised her hand again.

Dr. Sanders smiled and again motioned to her. "Yes, Ms. Campbell. I take it that wasn't a question."

"No, just an observation." Sara smiled back. "We're still seeing cases of Covid19 around...and flu season is also coming as well. Is this going to make the upcoming season worse? I mean, will we see a triple whammy this year, and is there anything else the public can

do to protect itself?" She sat back down and waited for the response.

"It's true, Covid19 is still around, and it's likely it will never truly go away. In fact, it most likely will become endemic, and we will have to deal with it from here on. Flu and RSV have been around a lot longer. But the combination of the three will make things more complicated.

"As I just said, Covid19 is here to stay, and it does complicate things. It has had a great impact on how we live our lives. In addition, it has altered the seasonal aspects of other diseases, and even our susceptibility to other diseases like the flu and RSV. We have more to think about now than we did even five years ago. We need to be more cautious."

Dr. Sanders paused for a moment, considering his next statement -decided to say it anyway.

"As to your question, Ms. Campbell, do we need to take additional measures to protect ourselves? I would say the answer is 'Yes'. We have a new mix of diseases now, and because we are disrupting ecosystems all over the globe, and expanding into new habitats - coming into contact with wild animals we used to be separated from in the past - it is likely sooner or later we will set off another pandemic. We cannot afford to let our guard down."

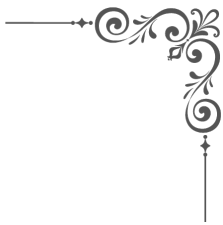
Dr. Sanders paused again, realizing he might be crossing a line. After Covid became a partisan political issue, health officials were forced to make mask, distancing, and sanitation recommendations based on political party affiliation rather than hard scientific facts. That galled him, so he pressed on.

"But I'm getting ahead of myself. As I said, we now have a new mix of diseases, and they pose a potential threat to young children and immunocompromised adults. It's important that we all get vaccinated. Vaccines are safe, and they help in the fight against disease. We all remember how quickly hospitals were overwhelmed during Covid19. We shouldn't let that happen again. Keeping vaccinations up to date is crucial. Even if you do get sick, it is unlikely that you'll end up in the hospital. That's a good thing. It enables hospitals to function normally and helps to alleviate a great deal of stress on health practitioners and the health care system in general."

Dr. Sanders seemed satisfied he had not committed any grave political sins, and had given the assembled reporters enough

information for now, and he didn't want to be seen as lecturing or admonishing. "That's all we have for you right now. We will continue to keep you all updated as more information comes in. Thank you all for coming."

With that, he gathered up his notes, stepped away from the podium, and left the briefing room. Sara Campbell tried to reach Dr. Sanders before he disappeared down the hallway, but lost sight of him. She had a few more questions to ask him about this particular outbreak that concerned her.



4

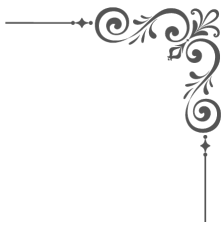
Respiratory Syncytial Virus has been around for a long time. Although it had been isolated from chimpanzee blood in the late 1970's, additional research since then had determined that RSV was of wholly human origin. Seasonal outbreaks of RSV and other respiratory diseases have been a common feature of winter-spring seasons since record-keeping began. Globally, there are around 64 million cases and 160,000 deaths a year attributable to RSV. RSV is responsible for one in every 50 deaths in children under 5 years old. Like many other afflictions, low-income countries contribute disproportionately to caseloads and deaths – 95% of the cases and 97% of the deaths.

During the 2022/2023 season, RSV manifested itself sooner, and healthcare workers reported spikes earlier and higher than in previous years. Numbers were sharply up from the 2021/2022 season. In late 2022, the number of cases was two to four times what occurred in an average surge. But, like every other year, caseloads waned as the weather warmed and people spent more time outside.

Worldwide, numbers were actually down over the 2023/2024 and 2024/2025 seasons in the northern hemisphere, though not by much. No one knew exactly why, but there were some theories. Globally, temperatures had been continuing to rise. Since early March 2023, ocean temperatures in the entire Atlantic basin and the north Pacific were off the charts. Scientists were baffled. Nearly 2 degrees C above the mean. An El Niño started to form early in

2023 and developed into a super El Niño by fall. The average surface temperature anomaly lept to over 1.5 degrees C for the first time in modern history.

The super El Nino may have been responsible for lingering heat over the entire globe well into late fall of 2024 in the northern hemisphere. The warm temperatures may have been responsible for keeping people outdoors longer, giving the RSV virus less chance to infect people.



5

14 June 2027 Monday
Canberra, Australia

Dr. Gary Sanders was sure a new strain of RSV was circulating in Australia. It had only been three weeks since the press conference, but all the data now coming in from around the country seemed to support that. As Chairman of the the AHPPC, the Australian Health Protection Principal Committee, it was his responsibility to investigate and respond to all public health threats for Australia.

Dr. Sanders wanted to get out ahead of this potential threat, though, because he knew this one could be devastating if not caught early. So, he called for a face-to-face meeting with all the Health Officers from around the country to get their input. He felt he could get a better sense of the developing situation by talking to each of the regional Health Officers in person.

Dr. Sanders started the meeting off by passing out copies of the latest compilation report to each member. He then summarized what was known so far.

“This Report covers the period 1 March through 7 June. You all pretty much know this data. Confirmed cases of RSV are rising. We were expecting that. In early March, we were seeing about 8 cases per day. Then, cases started to spike in May, averaging 246 confirmed cases a day. So far in June, confirmed cases are running 187 per day. Most of these cases are along the east coast, but we’re

beginning to see some inland as well.

"What scares the hell out of me is the mortality rate."

Everyone nodded. They had seen the data, also.

"Pretty much all these cases end up in the hospital. And 34% of those die. That's phenomenal... and scary. These are infants and young children mostly. Some older patients have been reported as well, and it's been just as life-threatening for them, but this seems to be a children's threat this time – kids up to five years of age, almost exclusively. It's becoming more evident that this isn't the usual RSV outbreak we've been used to. This one is different, potentially more deadly. Probably indicating a new strain."

Roger Bookhart, CMO for Northern Territory, spoke up, frustration evident in his tone. "We've all been waiting for this to happen, Gary. We've known for years the mutability of RSV is pretty amazing, and it was only a matter of time until a more dangerous strain would appear."

"You're right, Roger," Gary agreed, obviously concerned, as well. "The usual treatments aren't working. It seems to be going right to bronchiolitis. Oxygen, suctioning, bronchiodilators, anti-cholinergic agents - they're not working. Even IV palivizumab isn't touching it."

"Has any sequencing data come back yet, to show that this is a new strain?" Asked Caroline Hendres, CMO for Queensland.

"No, not yet, Cary, but it should be within the week," Gary said, "but I'm sure it'll be a new variant of RSV-A." Gary took a deep breath and let it out. "You all know RSV sequencing's been a low priority by all governments, not enough kids have died from RSV yet, apparently, to put any money into it."

Dale Overtown, CMO for New South Wales, added, "Well, that's about to change."

This was Dr. Sander's first real test since Covid19. He knew it was critical that he get this right, that he get control, because he was well aware how this could play out if his fears materialized. He had been in close contact with Australia's new CDC, formed in the wake of the Covid pandemic, and was assured that work was ongoing to learn everything there was to know about this possible new variant. The WHO, the World Health Organization, was also putting its best research epidemiologists on it. In light of these new developments, the WHO had elevated the global watch and threat level to Phase 3. They, of course, would continue to update all

health agencies through their RSV Portal, as data became available.

Threat Level 3 meant there was human-to-human transmission, but that the new strain had not yet spread beyond the borders of a single country. As far as they knew, at this point, the possible new variant had started in Australia, but was still restricted to that country.

Although it was early in the game, the next steps were critical, and Dr. Sanders knew it. At this point, the situation was officially nothing more than an outbreak, albeit a very serious one. They could still get this thing under control. But something told him that this outbreak would be different. He'd have to brief the Prime Minister as soon as possible, and that meant discussing the potential for further restrictions on public movement. He knew how unpopular that was going to be - and that there would be considerable resistance.

The Committee meeting lasted for about two hours. The group of medical officers charged with the nation's safety would now go back to their respective territories and state offices, and continue to keep close tabs on the developing outbreak. They all felt the same sense of urgency as well. Each was keenly aware of the importance of their job. Each knew that this would just be the beginning of many meetings.



The World Health Organization, as an agency of the United Nations, oversees international public health, sets global health standards, and provides technical assistance to countries around the world. It operates several international surveillance programs, one of which is the RSV Surveillance Program, which is part of its Global Influenza Programme. The objectives of the RSV Surveillance Program, among other things, are to provide easy access to information about RSV, enabling countries to respond to outbreaks and to make informed policy decisions at all stages of identification, prevention, and treatment.

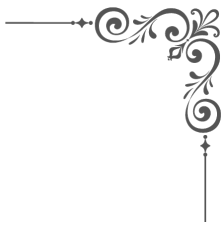
In its effort to streamline and standardize worldwide efforts to respond to outbreaks of influenza-like diseases, the WHO developed a 6-stage Pandemic Preparedness Phase System, characterizing different stages of a pandemic to enable the proper responses. Phase 1 is characterized by a virus circulating in wild or domestic animals, but not yet reported in humans. Phase 2 is declared when

the virus jumps from animals to humans. In Phase 3, the virus has attained human-to-human transmission but is not considered a community threat. In Phase 4, human-to-human transmission of the virus has become sustainable on a community level. The spread of the virus to at least two countries within a single WHO region indicates a Phase 5 level. When the virus has spread to a country in another WHO region, a full-fledged pandemic is declared.

The potential seriousness of RSV worldwide, and especially in third-world countries, however, has been consistently underestimated and, as a consequence, research and surveillance have been vastly underfunded. This has resulted in data gaps in just how the RSV infection process actually works.

The United States and Australia had, until recently, the best and most highly funded RSV surveillance systems in the world. While Australia has continued to improve its surveillance of RSV, and has participated in global RSV vaccine research, the United States, under President Donald Trump, in 2025, dragged the U.S. Public Health system back into the darkness of myths, sorcery, and superstition, rejecting vaccines, blaming them for the rise in autism and a host of other health problems, and crippling infectious disease and drug research.

The country's descent into autocracy, begun by Trump after the 2024 Election, was complete by the end of 2025, and Trump's successor, David Wainright, who assumed the Presidency in 2028, expanded upon his predecessor's regressive policies, effectively ending U.S. world leadership in medical and scientific research.



6

18 June 2027 Friday
Canberra, Australia

Sara Campbell, Health Reporter for The Australian, believed in facts. It was one of the things that made her a good reporter. She believed that people had a right to know the facts, and could only make informed decisions if they were given the facts. Facts weren't subjective. Facts couldn't be made up to suit a situation or a desired outcome. Sara followed the facts wherever they led her. She might not always be happy with them, or the story they told, but she accepted them as truth and based her reporting on them.

As far back as she could remember, Sara liked to write, and she was good at it. She also had a voracious appetite for knowledge of all kinds - people, politics, history, especially the natural sciences. Her interest in journalism began in high school. During her junior year, she became editor of the school newsletter and remained editor through the end of her senior year.

After high school, she accepted a full scholarship and enrolled in the University of Canberra's Journalism program. She graduated with a Bachelor's degree in Communication and Media four years later.

During college, Sara met Todd Weston, an engineering major from the U.S. They had a lot in common and hit it off well from the beginning, moving in together after college. Todd found a job with a local engineering firm, and Sara was hired by The Australian, a

nationally distributed center-right-leaning newspaper owned by News Corp Australia (which was owned by Rupert Murdoch). She wasn't keen on its political ideology, but it offered her the exposure she wanted, had a high readership nationally, and the salary was good.

After two years together, Todd was offered a position with a major engineering firm in Houston, Texas. The two discussed moving to the U.S., but Sara was reluctant to be that far away from her parents. On top of that, she had just been given her own column at The Australian – Science and Medicine. Ultimately, Todd accepted the position in the U.S., and they parted ways. Sara was heartbroken at first, but immersed herself in her job and new responsibilities, finding it cathartic.

Then came the Coronavirus pandemic in 2020. Sara nearly found a home at the Department of Health and Aged Care during the pandemic. She was a regular fixture at the briefings and interviewed just about everyone in the department. She was well respected by colleagues and Health Department staff as well. Her columns were accurate and fair. Career politicians, however, had nothing but disdain for her because of her dogged penchant to fact-check them in real time. She was repulsed by the politicization of the pandemic, and sympathized with the dedicated health officials who were doing their best to contain the virus and keep people safe.

It was during those hectic days of Covid19 that Sara got to know Dr. Gary Sanders. She interviewed him often during the pandemic, and the two developed a trust and mutual respect. She found him interesting, forthcoming, and a wealth of knowledge, but a little too serious. She also found herself attracted to him. He found her bright, a quick study, and eager to learn. Her generally more positive nature provided a counterbalance to his misanthropic disillusionment with humanity and pessimistic outlook for its future and that of the earth's natural systems.

The two shared a love of the outdoors and a respect for nature. Though Gary was fourteen years older than Sara, it seemed to have no bearing on their relationship. Neither had the stamina to try creating an impression on the other, and, as a result, they were open and honest with each other from the beginning, about themselves and life in general. Each knew the other without all the pretenses. They dated off and on, kept in touch by phone often, but,

because they were both busy with their careers, and had little time at the moment for a serious relationship, they were content with the friendship and let the relationship follow its own path - at least for now. Gary eventually moved on to become Chief Medical Officer in 2023 after Covid and Sara started doing more investigative assignments in addition to her regular column.



Sara wasn't buying the official line the Health Department was pushing. There was more to it, she was sure. She knew Gary, and she knew he was holding something back. He was more concerned than he let on. It was a little out of the ordinary for the Department of Health to give press briefings on the flu. Maybe, in some subtle way, at the press briefing, Gary was encouraging journalists to do more digging. He wasn't giving interviews either, but when they met for lunch a day after the press conference, he was a bit more forthcoming with Sara, outright telling her to follow her hunches. He hinted that the Prime Minister had issued a gag order until they knew more.

Sara took her concerns to her editor. She told him she believed the situation was more serious than the Health Department was letting on.

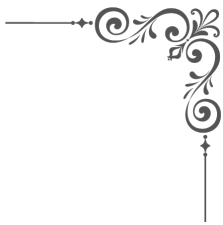
"How much worse, Sara?" he wanted to know. "Are we talking pandemic? Because I don't hear anything that extreme happening."

She wanted to interview the experts directly involved – the doctors and clinicians treating the RSV cases. They could shed a great deal more light on the current situation. She promised not to pursue it if nothing turned up. So, her boss gave her a green light and a short leash to check into it.

Sara decided she would start with the Centenary Hospital for Women and Children, on the campus of Canberra Hospital, a teaching hospital associated with the University of Canberra's School of Nursing and the Australian National University Medical School, and the largest hospital in the city. If Gary was serious about following her hunches, that would be the place to start.

She called ahead to see if any of the staff physicians were available to discuss the current RSV outbreak and was surprised to hear that three physicians from the Pediatric Respiratory Clinic, Drs. Christine Falworth, David Carter, and Jennifer Hemsted would be available and willing to talk with her, but Sara would have to

work around their schedules and cases. It might be a long day, she was advised. Sara thanked the Hospital liaison and said she would be there first thing the next morning.



7

20 June 2027 Sunday
Canberra, Australia

The alarm went off at about 5:15 am. Sara slid out of bed, stretched to loosen up, took a quick shower, and dried her hair (mostly). She popped an English muffin into the toaster, gobbled it down with a little blackberry jam, and followed it with a small glass of orange juice. She checked the time on her wrist watch, brushed her teeth, fussed with her hair a bit to straighten it out, and bounded out the door by 5:35.

She unlocked the door to her 2022 Hyundai Elantra, slid in behind the wheel, and sped off down Gritten Street toward Hilder. She made the right turn onto Hilder and headed toward Canberra Hospital.

Traffic was light this time of the morning, and she made good time, arriving in the parking lot of the Centenary Hospital for Women and Children by 5:55 am. She turned off the car, reached over to gather up her notebook and purse, opened the door of the car, and got out.

She took a deep breath and let it out slowly through her nose, as she stood quietly for a moment, looking over to the Center. The brightly colored, multi-striped facade of the Entrance stood out against the dim light of the dawn sky behind. She hoped she'd be able to get some real answers today. She didn't quite know how she felt about it. On the one hand, she could be at the cusp of a huge

story – but then, on the other, if she was right, and something momentous was beginning, the world was about to change, and not for the better. She walked into the entrance of the Center and made her way to the Information Desk.

The elderly lady sitting at the desk greeted Sara and asked if she could help her.

Sara introduced herself, and they exchanged "Good Mornings."

"My name is Sara Campbell. I'm a reporter from The Australian. I called yesterday and spoke to Mrs. Rendter."

The lady behind the desk smiled. "Oh yes," she said. "Mrs. Rendter left me a note saying you would be coming in this morning. She apologizes, but you won't be able to see all the doctors she promised. Dr. Carter and Dr. Falworth won't be able to see you this morning - they're just too busy with patients. We've been having a lot more admissions this week than usual. But, Dr. Hemsted is free – free enough. She's busy, too, but she agreed to meet with you before rounds, if that's still OK?"

"Yes...Yes, that's great. Thanks." Sara was a little disappointed she couldn't meet with all three, but she'd take what she could get.

"Wonderful." The lady got up from the desk and pointed down the hallway. "If you'll go through the double doors and turn right, you'll see the elevators on the left. Take the elevator to the second floor. After you get off, go down the hallway on your right. You'll see the Nurse's station about halfway down. They'll find Dr. Hemsted for you." The lady reached toward a shelf behind the desk and pulled out a mask. "Masks are required in the hospital. Did you bring one with you?"

"No, I'm sorry. I forgot to bring one," Sara apologized.

"Here, you can wear this one."

"Thank you." Sara put her notebook and purse on the desk, took the mask, and placed it over her mouth and nose, adjusting it so it felt right. She picked up her purse and notebook, left the information desk, and headed for the double doors. She noted the comment about higher-than-normal admissions but didn't know what to make of it. She took the elevator to the second floor and walked down to the Nurse's station. The station was empty, but before she could look around, a nurse appeared behind her.

"Good morning. Can I help you?"

"Yes, thank you. Good morning. I'm looking for Dr. Hemsted," Sara replied.

“Are you a visitor? Family? Do you have a patient here?

“No. I’m a reporter. I have an appointment to talk to Dr. Hemsted.”

“Oh, OK. Dr. Hemsted is in Room 28, just down this hallway,” the nurse motioned.

“Thank you.” Sara smiled and started down the hall, adjusting the mask to make sure of the fit. She couldn’t help but notice the young children in the rooms as she passed. Many were coughing and crying. Others had oxygen masks on. Her heart sank, and she felt bad for them – and for their parents, who were close by, hovering over them. She thought it must be terrifying to see your child like this and feel totally helpless to make them better.

Sara reached Room 28 and turned in. She saw a doctor and a nurse conferring over a young child, their backs toward her. It was evident the child’s condition was concerning them. When they appeared finished with their discussion, Sara spoke up. “Dr. Hemsted?”

The doctor turned around and looked at Sara. “Yes?”

“My name is Sara Campbell. I…”

“Ms. Campbell, yes…I was expecting you.” Dr. Hemsted looked back toward the nurse. “You’ll take care of that as soon as possible? And let me know if there are any changes.”

“Yes, Doctor,” the nurse replied, and left the room.

“Ms. Campbell. Let’s see if the visitor’s lounge is empty. We can talk there. I can’t promise you I won’t be called away.”

Sara followed Dr. Hemsted to the visitors’ lounge. The doctor opened the door about a third of the way and noticed three people sitting inside. She quickly closed the door again and motioned for Sara to follow her. They went to a small room behind the Nurse’s Station. “This’ll have to do.”

Once inside, Dr. Hemsted asked Sara how she could be of help and sat down in one of the cushioned chairs nearest the door. She motioned for Sara to take a seat.

Sara sat down at a small table across from Dr. Hemsted. She put her purse on the floor beside the table, opened her notepad, folded it to an empty page, and laid it on the table. She shuffled around in her purse for a pen, found one, and scribbled the doctor’s name and the date across the top of the notepad. “Last month, the Department of Health gave a press conference…” Sara began.

“I know,” Dr. Hemsted said right away. “I watched it.”

Sara got the distinct impression Dr. Hemsted was not happy with it.

“Dr. Sanders said that RSV cases were starting to rise, as they do every fall. He acknowledged that cases were starting earlier this year, but didn’t think they would rise to the levels seen in 2019 or 2022. He also said that the rise in cases could be due to reduced antibody buildup because of the precautions taken during Covid. Do you agree with that assessment?”

“It’s probably true that the reduced exposure during Covid19 limited antibody buildup, but I don’t think that’s a significant reason for higher cases this year. We’re also seeing more severe cases. Infants and young children who were previously just coming down with runny noses and getting over it in a week are now showing up in the emergency room. That’s different, and that’s why we’re seeing more cases, too. In fact, I think that may be a more worrisome reason why cases are up this year.”

Dr. Hemsted continued. “There was no mention that hospitalizations were up, or that cases were more severe.”

“Do you think the Department of Health is downplaying the seriousness of the current surge?”

“I can’t help but think we’re dealing with something very different from what we’ve been used to. Something we haven’t seen before. The Department of Health and Aged Care must be aware of the situation through the NNDSS.”

“What is the NNDSS?”

“The National Notifiable Diseases Surveillance System. It monitors over 70 different diseases that present a risk to public health. RSV is one of those diseases it keeps track of.”

“So, the Department of Health is seeing the same things you are.”

“I assume so. But what they see is data. It may not be as obvious as what we see here… or they’re being more cautious.”

“Or they are hiding something,” Sara suggested.

Dr. Hemsted ignored Sara’s suggestion. “I’m not sure if this RSV outbreak is more contagious, but it is more serious. We may be seeing more cases now because more of them are reaching doctors’ offices and hospitals. It’s too early to tell.”

“What about the severity of the disease? You said that’s new. Can the increased severity be due to decreased immunity resulting from the protective measures taken during Covid?”

“I don’t think so. We might see additional cases because antibody levels are lower, but RSV has never been a particularly lethal disease for normally healthy infants. The mortality rate for RSV is less than 2%. It can be highly problematic for babies with compromised immune systems, those that are under 3 months old, or preterm, or infants or toddlers with cardiopulmonary disease. But, it’s never been a threat to normally healthy infants.”

“So, even the babies that were hospitalized in the past, babies that were normally healthy – no underlying issues - made it through OK?”

“Yes. Otherwise healthy infants would come in with fevers and congestion, even with bronchiolitis in some cases, and we’d be able to treat them with current interventions, and they would recover. Even at-risk infants responded, in most cases, to more aggressive treatments. We still did lose some young children and infants even then, but 98% of them recovered.” Dr. Hemsted then added, “Not now.”

“What types of treatments did you use in the past for the most severe cases?” Sara was scribbling furiously, trying to keep up.

“Infants coming into the emergency room that were not considered at risk but were obviously in distress would receive additional oxygen, nasal suctioning, and IV fluids, also, if we determined they were dehydrated.”

“And the more at-risk and immunocompromised infants, how did you treat them?

“With bronchodilators, nebulized epinephrine, monoclonal antibodies, and drugs like palivizumab.

“What is paliv-iz-u-mab?” Sara asked, carefully pronouncing the word.

“Palivizumab is an immunizing agent. Any substance that provokes an immune response is an immunizing agent, like inactivated vaccines. The polio vaccine and hepatitis vaccines are inactivated vaccines.

“The point is,” Dr. Hemsted continued, “in the past we were able to treat RSV with a whole range of interventions at our disposal, and they worked, even for those patients who were considered high risk. The mortality rate for RSV was 1%, maybe a little more. That same arsenal of interventions is no longer as effective.”

Sara’s eyes widened.

“We’re losing maybe a fourth to a third of our patients now.

That's incredible... and worrisome regardless of whether they have underlying issues or not."

Dr. Hemsted paused for a moment, looked up at the ceiling as if collecting her thoughts, then looked back at Sara.

"It's heartbreaking for the parents. They don't understand why we can't save their babies... and honestly, we can't either. Something has changed."

Then Doctor Hemsted said, "We think this is a new strain, one that's more deadly."

Sara felt a chill go down her spine. "Have you related these concerns to the Department of Health?"

"We have... they acknowledged it, but we think they already knew." Dr. Hemsted was sure of it. "If we know, they know. Officially, they keep saying it's too early to tell. But I think they're afraid of the public reaction so soon after the Covid pandemic. They want to be doubly sure before going public. Research institutions are no doubt busy trying to identify this variant, and you can bet the WHO is involved. Bureaucracies, though, are notoriously slow to act. A lot of politics and optics are at work. It's simple for us. We see a threat and, scientifically, we know what to do. Bureaucracies have to be able to sell it to a wide spectrum of people, each with their own agendas and ideologies."

"Do you think we are on the way to another pandemic?" Sara asked the million-dollar question.

"I hope not," Dr. Hemsted replied. "But RSV is a highly contagious disease. Anyone can be a carrier... and be completely asymptomatic when passing on the virus. In the past, that wasn't critical because the disease was treatable. But if this is a new strain that's potentially more lethal, and that's the way it's looking, we could be facing a serious outbreak. It's going to require containment planning."

"The longer they wait, the worse it could be," Sara added. "Some countries found that out during the Covid pandemic. "Wait too long, and this could truly be catastrophic. How close are we to a vaccine?"

"We..." Dr. Hemsted started to answer, but was interrupted by a nurse entering the room. Sara and Dr. Hemsted looked up at the same moment.

"Dr. Hemsted, the patient in Room 14?" The nurse asked. Apparently, there was still some unfinished business to attend to

that required the doctor's approval.

"Of course. Excuse me. Ms. Campbell." Dr. Hemsted got up. "If you'd like to wait, I need to check on one of our patients."

Sara said she would wait. Dr. Hemsted and the nurse then left the room.

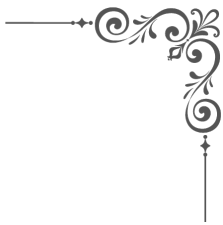
Sara sat quietly for a few minutes, looking through her notes. She made some additional notations to clarify some of the statements and worked up some additional questions she wanted to ask. It seemed to her that the country – maybe the world – was on the cusp of something major. She hesitated, characterizing it as a pandemic, but...

After an hour and a half, a nurse came into the room and told Sara that Dr. Hemsted was sorry, but she wouldn't be able to continue the interview. She suggested that Sara try calling back in a couple of days and, if Dr. Hemsted was free, maybe they could take up where they left off – but she couldn't promise. Things were getting hectic, and there was no telling when she would be free again.

Sara thanked the nurse and told her to thank Dr. Hemsted for taking the time to talk to her. She left the Nurse's station and found her way back to the elevators. She took the elevator back down to the lobby, thanked the lady at the desk, as she left to go out into the parking area. She was a little disappointed she hadn't been able to talk to Dr. Hemsted longer, but she was satisfied she'd been able to get some answers. It definitely looked like she was on to something.

Over the following few weeks, Sara was able to speak to Dr. Hemsted once more and was able to interview other doctors and staff at nearby hospitals. Though she didn't learn from those interviews a great deal that was new, she was getting a clearer picture of this newest surge and its implications. Her editor was impressed – impressed enough to give her permission to continue digging. Sara was hoping to put together an expanded medical feature soon.

Sara thought about the public, how blissfully unaware it was that there might be another pandemic brewing. Was she wrong? Was she making more out of this than there was? She didn't think so. Neither did the doctors she talked to.



8

13 August 2027 Friday
Canberra, Australia

It was about 6:30 pm on a Friday evening and Sara was just getting home.

"God, what a week" she thought, as she tossed her purse onto the kitchen table. She was tired. She had managed to crank out a weekly column, do updates on the current flu season, and create a feature article on PTSD and its social and financial impacts for the weekend edition of the Australian. She was ready to lie on the couch and stare at the TV until she fell asleep. First, she peeked into the refrigerator to see what she could find. She pulled out a slice of leftover pizza from the day before, dropped it on a plate, and put it in the microwave, then punched the 30-second button once, and watched as the unit turned on. She then kicked off her shoes and started for the TV.

Then, her phone rang. She let out a groan. All she wanted to do was lie on the couch and wind down. She really wasn't in the mood to talk to anyone. She reached down into her purse and felt around for the phone, located it, and pulled it out. She looked at the screen. It was Gary. "Hmm." She was surprised to hear from him. She punched the little button at the bottom of the screen and answered it.

"Hey, Gary," she said with a slight smile.

"Hey, Sara," came the voice on the other end. "You doing

anything tonight? Thought maybe you'd like to have dinner. My treat. I could use some company."

"Sounds great!" Suddenly, she perked up. Gary had always been good for her ever since they had met. He could be serious at times – even a worrier – but he had a good heart, and he was thoughtful. "I just got home, and I really don't feel like fixing anything anyway."

"I can be there in a half an hour to pick you up. I'm leaving the lab now."

"Give me an hour. I need to take a shower and wash my hair."

"Fine. See you in an hour, Sara."

"See you then, Gary. Bye."

Sara smiled again. She realized she missed him. She wondered if there could be more between them, if only they let it. Their jobs just kept getting in the way.

Gary was knocking on the door promptly at 7:30. Sara barely had time to dry her hair (again). She opened the door and continued combing it out.

"Come on in, I'm just about ready." She smiled. "God, it's good to see him," she thought. She hadn't realized how much she missed spending time with him.

"Take your time." He leaned forward and kissed her on the cheek.

"Where would you like to go? I was kind of thinking Snapper and Company."

Sara was not a food snob, but when it came to seafood, she loved the prawns at Snapper and Co, a casual waterside restaurant on Lake Burley Griffin, just north of Capitol Hill, the seat of Parliament. The view out over the lake was pretty spectacular at night, too. Gary had already made reservations earlier in the day, hoping Sara would say yes to dinner.

On the way to the restaurant, they made small talk, caught up on their lives, and laughed. Sara hadn't really laughed in a while, she realized. It felt good.

They parked off Mariner Place and walked over to the restaurant. Although it was late winter, the temperature outside was unseasonably pleasant, 60F. Once inside, they were shown to a table near the window by the hostess. She placed a menu in front of each of them and said their waitress would be by shortly to take

their orders. They thanked her and she left.

Sara looked out the window toward the Lake. It was already dark outside, the sun having set at 5:03 pm, but the lights of the city reflected off the lake in every direction, making for a beautiful sight. To the north on the peninsula was the National Museum of Australia, and behind the Museum was the Australian National University. To the east across the lake was City Hill and the lights of Canberra Central. Sara took it all in while she waited for the waitress.

Within a few minutes, the waitress arrived, introduced herself, and asked Sara and Gary what they wanted to drink. Sara ordered a Mulled Wine, and Gary ordered a Strongbow Cider Cooler. The waitress asked if they were interested in an appetizer, but each said they would pass. Neither was hungry enough. The waitress thanked them and said she would be back shortly with the drinks.

After the waitress left, Gary looked at Sara and smiled. “I’m glad you said yes to dinner.”

“Yeah, me too.” Sara smiled back. She picked up the menu and started glancing through it. “So, what’ve you been up to? Still liking your new job at the Department of Health?”

“Yeah… Busy,” Gary replied as he opened the menu and studied the Entrees. “A lot to get used to, but I think I’m going to like it. This flu season is going to be a challenge.”

> “Ahh… an opening,” Sara thought. She told herself Gary would not have made that comment if he didn’t want her to ask him about it. After all, he did tell her on their last lunch date to dig deeper into the RSV story, and he did mention on the phone earlier that he needed someone to talk to. Clearly, something was going on he wanted to open up about. She decided to take the bait.

“How so?” Sara coaxed Gary to open up to her about the RSV data.

Gary was just about to say something when the waitress appeared at the table with the drinks. She placed 2 coasters on the table and set the drinks out, then asked if they were ready to order.

Gary looked to Sara. “You?”

Sara nodded. “Yes.”

The waitress opened her iPad, typed something on the screen,

and scrolled to the appropriate order. “Great!” She looked at Sara. “What can I get you, Miss?”

“Grilled Tiger Prawns with Lemon Butter, please.”

“Good choice,” the waitress said, with a smile. “You’re going to love it. Tossed or Greek Salad?”

“Tossed.”

“What type of dressing?

“Ranch, please.”

“Thank you. And for you, Sir.”

“I’ll have the Tassie Salmon, with tossed salad and Ranch dressing.”

“Another good choice. Thank you. I’ll put the order in right away and be right back with your salads.

They thanked the waitress, and she left.

Sara looked at Gary, trying not to lose the moment. He looked back at her, his expression dead serious. Sara felt a chill wash over her.

Gary hesitated for a moment, debating whether or not he should tell her. But, he had already let the cat out of the bag, so...

“First of all, this is between you and me, Sara, off the record. This is not for print. I don’t want this to come back and bite me. I’m telling you this because I want Sara Campbell, citizen, to know, not Sara Campbell, reporter. And because we’re close and I know you can keep a secret. I know you’ve probably been out researching this anyway and most likely know much of what I’m going to tell you.”

“I know enough to be worried, Gary. I could tell at the briefing you were holding back, and I know you don’t like keeping secrets, especially if it’s something you think the public needs to know.” Sara was becoming more anxious by the minute. “How serious is it?”

“Promise me you’ll keep this between us.”

A server arrived with their salads and set them out, then left.

“I will, but you know, at some point, the public is going to have to know. What’s happening?”

Gary leaned toward Sara so he could talk without people overhearing the conversation. “I’m considering another press conference within a week or two on the current status of RSV. We all want to be sure we have the most accurate data available before going public. We’re on this, believe me. Us, the CDC in the US, and the WHO.”

Sara whispered across the table. “How bad *is* it?” Was it worse than she had thought?

“Yesterday, a team from the WHO arrived. The Incident Management Support Team. We met for about 6 hours, going over the latest data from hospitals across the country. I don’t know what else they did. I don’t know if they met with anyone else, but it’s clear they’re concerned. It’s just not clear yet how serious the situation is and where it’s headed... and the WHO doesn’t want to get ahead of itself.

“The WHO is notoriously cautious... and sometimes too slow to act,” Sara added. “Sometimes they wait too long.”

“We’ve been watching the RSV outbreak since late May, and this one appears to be a new strain. Maybe a more lethal strain. More data from hospitals and further research are needed to fully characterize it. We think this new strain may be a lot more serious than the garden variety RSV virus I described at the press conference.”

“I got the feeling you were more concerned than you let on,” Sara said in between bites.

“You weren’t making it easy for me up there.”

“Well, I didn’t know what you knew, Gary. I didn’t know you were maybe staring at a new pandemic. And I didn’t know if you were under pressure to hold back information. I thought Townsend had learned from Covid.”

“Townsend’s afraid of his ratings. That’s not new. He’s being overly cautious until we’re sure what we’re dealing with. What is new is, this could possibly be a lot more dangerous. This latest mutation is a huge jump from the common strain that’s been circulating for years. but it’s still manageable if we institute the right containment procedures. What we’re concerned about is if the old strain can make this big a jump, the new strain might be able to mutate further into an even more lethal form – one that could be a massive headache. That’s why there is a huge effort ongoing to characterize this strain and see if we do have anything to worry about.”

“I’m getting the feeling you think we do.”

“There’s no vaccine for RSV...” Gary started to say, then corrected himself. “Well, none for children, anyway, none that can be used directly.”

Sara took a sip of her wine and finished up the last of the

prawns.

“There’s no effective vaccine for young kids, five and under, so if this is a more deadly strain, it could be catastrophic. The Prime Minister wants to keep a lid on it. He keeps saying we need more information, and not to get panicked, but I think this is the beginning of a pandemic worse than anything anyone has seen in modern times.”

“Worse than Covid?”

“Much worse.”

Gary was about halfway through his meal.

“How is it, the salmon?” Sara asked.

“Good!” He continued eating.

“Are you worried?”

“Yes. I’m very worried. RSV has never been a particularly dangerous virus, but it is highly mutable and capable of rapid evolution. I think it’s taken a leap we never anticipated.” He took the last bite of the salmon and laid down his knife and fork.

Gary looked at Sara, was silent for a moment. “We need to see more of each other, Sara.”

“This was good,” Sara said. She was a little taken aback, though. She hadn’t expected the emotion. She smiled, reached across the table, and held Gary’s hand.

“It was! We – I... just need to lighten up more the next time. It was my fault,” Gary confessed. I shouldn’t have dumped this one on you.”

“It’s hard to lighten up, Gary, when you’re staring down a pandemic.

“It’s hard to lighten up anymore, period.”

The waitress checked on them and, seeing they were finished, asked if they wanted dessert. Gary looked at Sara.

“Nope. I’m stuffed. It was delicious.”

Gary told the waitress they were ready for the check. She smiled and said she would be right back.

“Don’t feel bad about it,” Sara said. I’ve been to just about every hospital in the city over the past month, interviewing doctors and looking at sick and dying kids. It’s heartbreaking. I know how you feel...and I’m worried too. Doctors are worried. They’re running out of treatment options.”

The waitress was back with the check. Gary looked it over and handed her his credit card. She left again to process it.

Sara changed tactics, realizing she needed to lighten the mood. Maybe a little optimism might help. “Maybe this won’t be as bad as we’re imagining,” she said, not very convincingly. Inside, she was deeply uneasy.

Gary signed the credit card charge slip, finished the last of his cooler, and got up. Sara was already up. They made their way to the entrance and left.

It was 9:45 now, and it had gotten noticeably colder. There was a slight breeze coming in off the lake, and it made Sara more uncomfortable. “Brrrrrrr... cold,” she said as they walked to Gary’s truck.

Gary put his arm around her to help shield her from the wind. “Better?” he asked.

“Much,” she replied. It felt good in his arms. Somehow, she felt safer.

On the way home, they talked about the dinner, the view, how they loved it in Australia, about wanting to do more hiking and biking, and about visiting some of the national parks. There was so much to see in Australia. So much beauty. They shared some life experiences and told each other things about their lives they never told anyone else. They were drawing closer, and each felt it, though they didn’t mention it.

Before they knew it, they were in front of Sara’s house. Gary shut off the engine, and they sat in silence for a moment, both staring out the front window.

“I’m glad you called,” Sara said. “This was great. I miss talking to you.” She turned and looked at Gary.

“Me too.” Gary returned the look.

“We need to do this more often. Promise me, we will.”

“I promise. And thanks for listening to me.”

“What are friends for, right? Sara touched his hand.

“Yeah,” he responded. He gently squeezed her hand back. “I’ll walk you to the door.”

Gary got out, went around to Sara’s side, and opened her door. She stepped out, and he closed the truck door. They walked the short distance to her front door.

Sara ran her hand around inside her purse searching for her keys. “Call me tomorrow,” she said as she pulled the keys out and started to open the door.

“I will.” Gary looked at Sara, gave her a gentle kiss on the

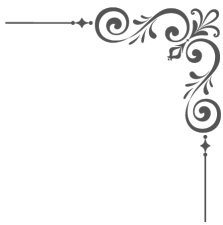
cheek, and turned to walk away. “Good night, Sara, talk to you tomorrow.”

Sara grabbed his hand as he turned away. “Want to come in for a bit?”

“Thought you’d never ask.” His mood brightened considerably.

They kissed softly, lingering for a moment.

Sara opened the door, and they went in. The door closed behind them. A moment later, the porch light went out, and Gary’s locking system on the truck sounded.



9

14 August 2027 Saturday
Parliament Briefing Room
Canberra, Australia

The Australian Parliament House Briefing Room was crowded with reporters - standing room only. Prime Minister Robert Townsend was there to update them on the RSV outbreak.

Also present, Secretary of the Department of Health and Aged Care, Dr. Julia Leflan, Deputy Secretary of the Department of Health and Aged Care, Dr. Ronald Sherwin, Chief Medical Officer, Dr. Gary Sanders, and Head of the Office of Communicable Diseases, Dr. Carla Metzgar.

Prime Minister Townsend was clutching a handful of notes as he stepped up to the podium. He looked around, smiled briefly to the press, and then began.

“Good morning, everyone. Key to the government’s responsibility to the people of Australia is a commitment to transparency and to delivering accurate information in a timely fashion. I want to thank Dr. Sanders, Chief Medical Officer, and Dr. Leflan, the Minister for Health, for their tireless efforts to provide information to me and to the people of this country that we can trust and rely on. We learned during the Covid pandemic how damaging it can be to depend on the internet and social media for that information.”

Prime Minister Townsend continued. “We have called this press

conference to announce a Health Watch concerning a respiratory illness that affects the very young and also our elderly population. It is just that – a Health Watch. It concerns the illness RSV. RSV is a very common respiratory virus that is present in every country in the world. It's like the flu, and we have outbreaks of it every fall and winter. We believe the one that is circulating this year is a new strain of virus that originated here in Australia through a chance mutation. At the moment, this new strain poses no significant health threat to the good people of Australia, but we want to watch it. We don't believe, at this point, that we have to take any extraordinary measures. As Dr. Sanders will explain to you in a moment, at this time, all that is necessary are common-sense measures. Australians are a common-sense people, and I believe they will respond accordingly. People can still go about their normal everyday lives."

Dr. Gary Sanders listened in silent disgust. 'Transparency'? 'Accurate information'? "Bullshit," he thought to himself.

Prime Minister Townsend turned his head toward the assembled group of medical experts and continued. "I'll now turn this over to Health Minister Leflan and Chief Medical Officer Sanders to provide you with more detail concerning the Watch and some guidelines we can all use to fend this off. Minister Leflan?"

The Secretary of the Department of Health and Aged Care stepped up to the podium. "Thank you, Prime Minister. As of now, we have no information indicating the new strain of RSV is anywhere other than Australia. That is good news. It means that the virus is, so far, contained. The total number of cases reported throughout Australia so far this year is 78,320, or about 356 cases per day. The latest figures, which are higher but typical of the height of the RSV season, are 639 cases per day. Of those, 169 cases resulted in hospitalization. Those 169 cases were predominantly children under the age of 5 and adults over the age of 65. There were very few cases for ages in between those two. That may sound like a lot of cases, but remember that RSV is a very common virus, and we normally have between 300 and 600 per day this time of the year. So, the number of cases isn't very different from what we normally see."

She glanced down at her notes for a moment and then looked back at the press corps. "The rate of hospitalization is about 25%. That's higher than other years because of the new strain, but we

believe that will come down as we use stronger interventions. Sadly, we have also had a slightly higher number of deaths than we do in an average year but, again, that is due to the new strain. Doctors are learning more each day how to combat this new strain and, although the loss of even one child is dreadful and unacceptable, they are working incredibly hard to overcome this virus's defenses. We believe that by the spring, we will have described this new strain of virus and will have effective interventions to eliminate the threat. Dr. Sanders will be able to provide additional information on how the people of Australia can do their part to protect themselves, their children, and the elderly during this time. We believe that, as the Prime Minister has said, the people of this country are resilient and endowed with a great deal of common sense."

Minister Leflan picked up her notes, bounced them a couple of times on the edge of the podium to get them in order. She introduced Dr. Sanders and walked back to her chair.

Dr. Gary Sanders stood up and walked to the podium. He looked down at his notes for a moment, then looked up at the assembled press. Gary said nothing for a moment, and, to those journalists assembled in the room, he seemed uncomfortable, but he was weighing his options. He knew the threat was potentially more serious than either the Prime Minister or the Health Minister was letting on, and he knew downplaying the threat was wrong. But he also knew he was going to have to be circuitous in his briefing, providing the basics of what was currently known, without being entirely forthcoming. That was not transparency in his view. It was not protecting the public but caving to special interests, keeping the economic machine turning, keeping the capitalist system moving. Prime Minister Townsend was a politician, and keeping the current economic system humming kept him in office.

"Thank you, Minister Leflan." Dr. Sanders began. " I'll try to be brief. We have a new strain of Respiratory Syncytial Virus that is quite different from anything we've seen before. We are following it carefully and working closely with many research laboratories toward describing it as quickly as possible. RSV is highly contagious, and anyone can contract it. You may not even know you have it. For most, it is not a serious threat. But care must be taken to avoid spreading it to those who may be most vulnerable - young children under the age of 5 and adults over 65."

Dr. Sanders continued, threading the needle of what he could say carefully. “So, our focus right now is on containment. We ask everyone to take sensible precautions, practice safe distancing, and avoid crowds. Wash your hands often. We remember all of this from Covid. When it comes to infants, avoid kissing them on the face if you think you may have symptoms. Wash their toys and their immediate environment. Again, avoid exposing them to crowds.”

Though he thought it might be controversial, he couldn’t keep himself from adding, “I would even go so far as to recommend wearing a mask around young children. Get tested if you think you might have RSV. That goes for other family members and close friends if you think they will be in contact with children.”

Dr. Sanders knew he was testing the limits of what he could say. He glanced quickly at Prime Minister Townsend, could see the look of irritation on his face, could tell the PM was not happy, then looked back to the reporters. “All of the common-sense measures that avoid close contact will help to keep this virus from spreading.”

Dr. Sanders ended his comments with “the entire health system is working as one to bring this latest outbreak to a close. There is no need to be overly concerned and no need to do anything more than take normal precautions at this point.”

Prime Minister Townsend seemed to relax.

Gary felt like he was being cavalier about the whole situation, and he hated it. He knew things were far more serious, and he wanted to tell people that, tell them to wear masks outdoors and around young children, even at home, to be sure to sanitize everything that came into contact with children under 5 and infants, to limit their exposure to other people, to distance, to avoid crowds, stay away from restaurants, that this was a serious illness with the potential to kill. But, he couldn’t because it would be considered politically motivated fear-mongering. Just suggesting people wear masks brought a dirty look from the PM.

Gary stepped away from the podium and returned to his chair. As he watched the Prime Minister walk back to the podium, he was angry and frustrated. Even more so when Townsend shot him a peeved look on his way up. The journalists in the room, and all those people who depended on them for truth and facts, were being shortchanged. The people deserved better. But he also knew he was in the best position to help those people.

“Thank you, Minister Leflan and Dr. Sanders for the update and comments. I think we have time for just a few questions. Yes? Ms. Campbell.” He pointed to Sara, who had shot her arm up first.

“Dr. Sanders, is it true that the mortality rate for those hospitalized is approaching 30%?”

“That seems rather high,” Townswnd responded, looking over to Gary. “I don’t think it’s that high. I haven’t heard any numbers mentioned. As Minister Leflan mentioned, the death rate is a bit higher than in other years, but we don’t yet know how significant that is, or if it will continue to remain elevated. But maybe Dr. Sanders can clear that up. Dr. Sanders, you want to set the record straight? It isn’t that high, is it?” Townsend shot Gary a look that seemed to say, “Careful.”

“We’re still getting data in from across the country, Ms. Campbell. I think it’s too early… we don’t have enough data yet to determine the mortality rate with certainty, but from the data I have seen, it seems close to that.” Gary couldn’t help himself.

Townsend was not happy with that response.

Sara raised her hand again, but Prime Minister Townsend ignored her and pointed to the back of the room. “Yes?”

“When it comes to common sense, can we assume that this time people will not choose to stockpile food or supplies?”

“This is not a pandemic,” the Prime Minister emphasized. “There is no need to go out and buy up goods and supplies, to hoard anything. Go about your business normally and just take the precautions that were mentioned here today. There is no need to panic.” He watched more hands go up around the room. “Shit,” he mumbled under his breath. “I’m sorry, that’s all the time we have for today. The Health Minister and Dr. Sanders will continue to provide updates as necessary. Thank you, everyone.”

Prime Minister Townsend left the podium and walked briskly out of the room, followed by the rest of the team. Reporters continued to shout out questions as they left, but no further responses were forthcoming. The reporters were clearly disappointed they weren’t getting more answers.



“What the hell was that, Gary? Was that a real press conference or just a snow job?” Sara was on the phone with Gary fifteen minutes later.

“Do you enjoy putting me on the spot, Sara?” Gary was angry. “You know I have to be careful. I agree with you, and it pisses me off too, but I can’t do much if I get fired. I already pissed Townsend off today by going as far as I did.”

“You’re right, I’m sorry.” Sara felt a bit guilty. “I was only trying to help. It’s just, the information is out there. It’s not exactly a secret. Anybody who’s talked to a doctor knows the mortality rate is around 30%. That’s way up from what, 4%, what it used to be? That’s a phenomenal increase. But Townsend is acting like this is nothing. I thought they would be a little more worried.”

“2 or 3 percent.”

“What?”

“It’s 2 or 3 percent, the old mortality rate.”

“Even more phenomenal.”

“You know this is the government, Sara, right? These people are either elected politicians or appointed officials who answer to elected politicians. Nothing gets done fast.”

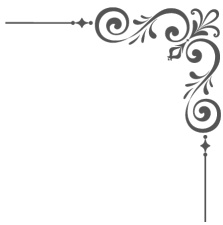
“I thought you were worried,” Sara asked.

Gary took a deep breath and let it out. “I am worried, Sara. I know where this is headed, but I know if I push too hard, I’ll be out and nothing will get done. Believe me, if it was up to me, I’d already have the borders shut down, and everyone would be wearing masks. But that’s not the way it works. I’ve got to have hard data; even Townsend can’t dismiss.

“By then, it might be too late.”

“I know, but you saw what happened in the Covid Pandemic. Borders were shut down, businesses were closed, and when things got tough, when economies slowed, the politicians worried about getting re-elected, not people dying, so they scrapped everything. They threw all the safety precautions in the shit can, and politicized the pandemic. They defamed good health experts, made them enemies - all in the name of progress. It’s shitty, but we have to work within the system, do the best we can. It’s not perfect, and it galls me to have to do that, but I can’t help people if I get fired. None of us can. Believe me, I will do everything I can to keep people safe, Sara, I swear.”

“I know you will, Gary, I’m just frustrated with the whole damn system. It stinks.” Sara then switched tracks. “Want to come over tonight? She asked. “I’ll make dinner.”



10

20 August 2027 Friday

A week after Townsend's innocuous press briefing, and rosy outlook for the future, everything had changed. The World Health Organization issued a statement saying the new RSV variant had now been found in Bangladesh, India, Pakistan, and also in the United States. The Organization now believed the new strain may have originated in Bangladesh, possibly in Dhaka, and not in Australia as previously thought.

The WHO had formally given it a name. 2027RSV-A2.1. Respiratory Syncytial Virus, Strain A2.1, a variant of RSV-A2. There had already been two other strains - A and B. Genetic sequencing of the virus had been accomplished by labs in the USA and Australia.

The affected countries began restricting travel, screening both incoming and outgoing travel. Other countries issued travel advisories, allowing travel but warning of possible infections. The CDC in the USA activated its Emergency Operations Center.

The WHO declared a Public Health Emergency of International Concern.

A global Pandemic was underway.

11

It was four years since the emergency phase of the Covid19 pandemic was declared over. And now the world was bracing for a new one. It had barely enough time to catch its breath in between.

To make matters worse, there were new outbreaks of chikungunya, dengue, and Zika. A super El Niño in 2023 and 2024 helped raise the average temperature of the Earth to new highs, helping to make the outbreaks possible. These diseases are spread by mosquitoes, and in a warming world, mosquitoes have extended their range both in altitude and latitude. Argentina and Bolivia declared health alerts in 2023 and 2024, and now again in 2027 in areas that had never seen dengue before. In 2023, cases were reported further south in South America than ever before, and in 2027, dengue had been isolated in France and Germany.

12

23 August 2027 Monday
WHO Headquarters
Geneva, Switzerland

The same day the WHO announced pandemic conditions existed, Australia closed it's borders in the hopes of controlling the spread of RSV. Three days later the WHO held a press briefing at its headquarters in Geneva. Present were a spokesperson for the WHO and two top members of the World Health Organization's Health Emergencies Team. They sat behind an eight-foot-long table in the front of the room, facing the gathered members of the press. The table was empty, save for each individual's briefing papers and microphone, a pitcher of water, and three glasses.

At one end of the table sat Spokesperson Aleksander Dabrowski, a stout, rugged-looking man with a large head, bushy eyebrows, big, bulbous nose, and a disheveled appearance. He stared out at the press as they filled in the available seats. After they had settled, he stood up and raised his microphone to within a few inches of his mouth, and opened the briefing by tapping on his mic.

"Good afternoon, everyone," Dabrowski said in a deep, gravely, heavily accented voice. "Thank you for coming to this briefing regarding the developing situation with the new Respiratory Syncytial Virus outbreak. Here, today, is Dr. John Shefler, WHO Executive Director for the Health Emergencies Programme, and Dr. Emma Arendt, a WHO Field Investigator for the Emergency Diseases

Programme. They are both back after a trip to Australia, India, Pakistan, and Bangladesh, where they conferred with health authorities from each country. Because the number of recorded cases and the degree of spread have so far been highest in Australia, our focus today will be on conditions there. I'll now let Drs. Shefler and Arendt brief you on their visit."

Dabrowski looked down toward Dr. Shefler and nodded his head.

Dr. Shefler, a fortyish-looking, slight man of average height, with a close-shaved beard and short haircut (already graying), nodded back and pulled his microphone closer to him. He talked at length about their visit and talks with Australian health officials. This newest pandemic was just beginning, he said, but the strain of having endured Covid19 for three years and now having to gear up to endure a second pandemic so soon was quickly straining the health care system everywhere.

Dr. Shefler then began his discussion of the virus itself. "RSV has always been a very contagious disease, infecting more than 64 million people worldwide every year. Those affected are mostly adults over the age of 60 and children under the age of 5. Although it can produce very serious symptoms in some patients, requiring hospitalization, RSV has not historically been recognized as a killer, taking 160,000 lives annually. That's a mortality rate of less than three-tenths of one percent."

Dr. Shefler, his throat dry, coughed, took a sip of water, and continued. "In early May, Australian hospitals began reporting higher rates of serious infections from RSV, and experienced more difficulty resolving the cases. Interventions normally used before, even in extreme cases of bronchiolitis distress, were not working. Nasal swabs taken from patients exhibiting non-responsive symptoms were analyzed, and a new variant of Respiratory Syncytial Virus was identified. This new variant, RSV A2.1, now comprises 25% of the new cases of RSV reported, but represents nearly 100% of those hospitalized, and nearly 100% of the deaths. Since the beginning of the year, 128,150 cases of Respiratory Syncytial Virus have been reported in Australia. Of those, 32,037 were RSV A2.1. By July, mortality rates from the new variant were approaching 32% of hospitalizations, whereas the common variants RSV-A and RSV-B were less than 2%.

"Unbeknownst to health officials at the time these cases were

showing up in Australia, a death had already occurred from an RSV infection in Dhaka, Bangladesh, in March of this year. At the time, it was not recognized as an extraordinary RSV infection and was not reported as such. It wasn't until the Australian cases appeared that health officials went back and re-assessed the Dhaka case. It was then that we began considering that the Dhaka case might have been the first one. We are still looking into other cases in Bangladesh that occurred around the same time to see where they fit in, but, for now, we think the Dhaka case was the first.

Dr. Sheffler stopped for a moment and cleared his throat again. "One important aspect of this outbreak is that, as of now, the number of cases reported daily is no different than the number we see in any other year. So, at this point, the new variant does not appear to be any more contagious than its predecessors. The difference is that more of those cases are resulting in hospitalizations, and a greater percentage of hospitalizations are resulting in deaths. So, this new strain appears to be more lethal. To date, there have been 10,252 deaths from RSV in Australia, all of them due to RSV A2.1.

"Initial symptoms are identical to the common strain of RSV but progress rapidly to high fever, bronchiolitis and pneumonia. Death results in nearly a third of those cases. As I stated earlier, we believe the origin of this new strain is from a chance mutation in Bangladesh."

Dr. Shefler took another sip of water and pressed on. He commended the Australian health system and government officials for watching the developing situation closely and for instituting a Health Watch with accompanying public constraints to limit the spread. The Australian government, he said, also remained in close contact with the WHO throughout, providing updated information daily. Australia was quick to close its border when the pandemic was announced.

"RSV A2.1 has also been identified in India, Pakistan, the United States, and Singapore. Bangladesh is reporting 830 cases per day, India is reporting 1000 cases per day, Pakistan, 724, the United States, 520, and Singapore, 8 cases per day. These numbers are total RSV cases. As I indicated before, RSV A2.1 roughly comprises a quarter of them. We have no data indicating RSV A2.1 has spread beyond the countries mentioned at this time. But it is likely that the A2.1 strain has already spread to other countries, or will in the near

future.

“All countries need to be prepared and have plans in place to act immediately, should cases appear. We have learned a lot from our experience with Covid19 and we will be able to apply those lessons toward containing and ultimately stopping RSV A2.1. We are using established networks such as the RSV Surveillance System and Global Influenza Programme to gather information and coordinate responses. We understand not all countries have the resources to fight this outbreak, so the WHO stands ready to provide support to more vulnerable countries, to provide advice, to help with tracking, diagnostics, quarantine, and follow-up. We have clinicians and scientists available, also.”

Dr. Shefler knew most of the press had been drawn to the briefing room by the more attention-grabbing headlines of the developing Pandemic, but other pressing crises in the world needed attention also. There were always other pressing crises, it seemed. He felt an obligation to inform the press about the status of a few of those emergencies. He reminded them of the ongoing conflict in Ethiopia - one that had started in 2020 - and the 20 million-plus people who were caught up in the middle of it, who were in desperate need of help. The conflict between government forces and rebels had led to a collapse of healthcare facilities, an outbreak of malaria and measles, and food insecurity in the region.

Conditions in Syria and Afghanistan were still deplorable. Each country had its own unique set of conditions, but protracted political and socio-economic crises had resulted in a breakdown of basic healthcare, continued strain from Covid19 (and now RSV), malnourishment, and unsafe water and sanitation. The WHO was working with partners in both countries to provide vaccinations, medical equipment, and other critical needs.

Then, there were the numerous, but usual regional outbreaks of diseases like Marburg, Zika, influenza, meningitis, avian flu and Lassa. It seems these diseases would always be there, but somehow, it felt like there were more cases of them now.

Dr. Shefler finished up with a plea. It was tragic and exhausting that it was necessary for health officials to always have to plead for cooperation among nations every time a tragedy struck, but there it was, once again.

“We must act together. We must cooperate and share resources. We must help each other. Cooperation and transparency are our

greatest assets in this task. And above all, we must act on the science and not on our fears, and we must make evidence-based decisions."

Spokesperson Dabrowski then opened the press conference up to questions. The WHO had made arrangements to take questions from not only those present but also from journalists around the world who were watching on the WHO Twitter Account.

The first question came from a Wall Street Journal reporter in the room. "Could countries be trusted to be transparent and share data? We all saw how that became an issue during Covid19. And do you fear that politics will again interfere with cooperation?"

Dr. Shefler responded. "It's true, there were issues during Covid, and that was unfortunate. The WHO is not a political organization and will do its best to provide accurate, science-based information. We can't speak to the reaction of countries, but we hope, as individuals and as world leaders, we have learned from Covid.

"It is here that the Media can do its part," he continued, "and provide an invaluable service. Information should be based on science, fully researched and verified. It can only hurt and complicate matters if false theories and conjecture are spread about and given credence."

Another question came from the Twitter feed. "Sara Campbell, from The Australian. Do you think RSV A2.1 will replace the common RSV variants and evolve again, into a more deadly form? Are you concerned that the RSV pandemic will be more serious than Covid? And how close are we to a vaccine?"

That's three big questions," Dr. Shefler replied. He felt that the question would be better answered by Dr. Arendt and asked her to respond.

Dr. Arendt, a short, petite woman in her sixties, with shoulder-length black hair pulled up into a tight bun, leaned closer in toward her mic. "RSV can be a highly variable virus," she began, her thick German accent a bit hard to follow. "There is no way of knowing if it will mutate again so soon, but it is likely that if it is around long enough, it will do so at some point. That is why it's so important to contain these viruses, so they don't have enough time to mutate. RSV A2.1 is more deadly, but, thankfully, it is no more contagious. It also must have some advantage over the common form to replace it, and currently, it doesn't appear to have any. That is not to say it will not do so, and based on the fact that RSV, in general, is a

highly mutable virus, as I mentioned, there is a fair chance it will eventually replace the common variety.

"As for a vaccine, Arexvy became available in 2023, works on variants A and B, and is meant for adults 60 years and older. It is not recommended for children and infants. Unfortunately, it doesn't work on the new variant RSV A2.1 – or only marginally."

Dr. Arendt took a sip of water. "The only vaccine currently available for infants is RSVpre-F. It is a maternal vaccine, which means it is given to mothers before birth. It produces antibodies in the mother's system, which are passed on to the fetus. It is also only marginally effective against RSV A2.1. The problem with the maternal vaccine is that the maternal antibodies wane within 6 to 12 months after birth, and that's when RSV is at its most dangerous.

"Researchers are working on live attenuated vaccines that can be administered to pediatric patients intra-nasally, but results are, so far, disappointing. Producing viruses that are attenuated enough to produce antibodies without causing the disease itself, but not too attenuated as to produce an ineffective vaccine, is difficult at best. mRNA vaccines, which did so well on SARS CoV-2, are only available for adults, and they, too, are not very effective against RSV A2.1. We have a lot of work to do."

Dr. Arendt took another sip of water, pushed the microphone away and sat back in her seat.

Spokesperson Dabrowski looked around the room. There were a lot of hands raised. He thought to himself that it was a shame it took a pandemic to attract this much interest in world health matters. Where were all these reporters when the WHO was pleading for the world to wake up and recognize the ongoing crisis of starving humanity in the Horn of Africa?

"Yes. From The Associated Press," Dabrowski pointed to a woman in the third row.

"Georgiana Fines, Associated Press," the reporter introduced herself. "First, is it true that the United States has banned mRNA research, and won't that hurt efforts to develop a vaccine? And, second, how should countries be responding right now?"

Dr. Arendt quickly pulled the microphone back to her and leaned into it. "I can answer the first part of your question. No, the United States has not technically banned mRNA research, but it is no longer funding it, which is nearly the same thing. In 2025, under the newly appointed head of the Department of Health and Human

Services, Robert Kennedy, mRNA research funding was terminated in a number of ongoing programs, and reduced in a number of others."

Dr. Arendt, greatly irritated at the disappointing turn healthcare research had taken in the U.S., couldn't help sarcastically finishing with, "Apparently, the HHS Secretary, who has no scientific training and is not a medical doctor, thinks he knows more than the hundreds of highly qualified researchers that work for him." Dr. Arendt pushed the microphone away again and sat back in her chair.

There was a moment of silence as everyone in the room processed Dr. Arendt's comment. Though no one disagreed with her, they were a bit surprised to hear such pointed criticism from a respected member of the scientific community. Scientists were usually more reluctant to get into partisan wars.

Aleksander Dabrowski broke the silence. "Well, ah... thank you, Dr. Arendt. Dr. Shefler, I believe you can respond to the second part of the question. Will you please?"

"Ah, yes... thank you." Dr. Shefler, his eyebrows raised, was amused. "Coordination and cooperation is key. Countries acting on their own, unilaterally taking actions based on their own situations and policies, and political ideologies, is a recipe for disaster. We found that out during Covid. We have plans and programs in place that work. All member countries have agreed to cooperate when responding to a threat. They have agreed to follow the PHEIC, the Public Health Emergency of International Concern provisions. It sets out a framework for responding to international health emergencies.

"The Emergency Committee of the WHO receives information about a potential situation and develops recommendations. Countries have agreed to work together to implement those recommendations. They were in place during Covid, but many countries failed to respond in unison, and many failures resulted. If we will coordinate responses, maintain a dialog, be transparent, and act together, we can defeat any health threat."

Dr. Shefler had made that plea many times before. It seemed so obvious, yet there were so many competing interests and so much mistrust that achieving a unified response was near impossible.

The Question-and-Answer Session went on for another forty-five minutes when Spokesperson Dabrowski called an end to the Press

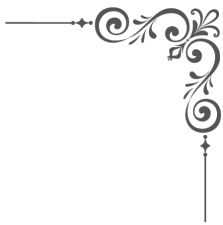
Conference.

“I think that is about all the time we have for today. Dr. Shefler and Dr. Arendt are tired from their trip and need some rest. I’d like to thank everyone here who has attended this briefing and those who have participated on our Twitter account. We will notify the press of our next briefing. No doubt it will be very soon. Thank you again.”

The briefing ended. There were still many more unanswered questions, but they would have to wait for now.

Sara, in her pajamas, sitting at the kitchen table in her home in Canberra, closed her laptop and thought for a moment. “Jesus, this is going to be bad.” She looked through her notes and made sure she had also gotten an audio recording of the briefing. She’d go through all of this later, she thought.

Suddenly, she felt exhausted. She looked at the clock. 1:30 am. It was already the 24th. “Thank God it’s still the weekend,” She rubbed her eyes. There was an eight-hour time difference from Geneva to Canberra. She needed to get some sleep. She’d digest this information and get it into print later, but right now she needed some rest. She got up from the table and went into the bedroom, pulled her pajama bottoms off, tossed them on the floor, and fell onto the bed in her panties and pajama top. She lay there for a moment, thinking about the current state of the world, then pulled the covers up over herself. She was asleep in less than a minute.



13

24 August 2027 Tuesday
Canberra, Australia

It was 7:35 am when Sara awoke. Light was just beginning to fill the room. She never could sleep past 8. She stared up at the ceiling fan as it turned slowly on low speed. She noticed a thin wisp of a spider web trailing beneath the fan as the air caught it. “Got to get that” she thought, as she watched the web dance about in the air current coming off the fan blade. “I need to do some cleaning. It’s starting to get out of hand.”

“Tomorrow.”

She got up, slipped a polo shirt over her head and pulled it down over her torso, then walked out into the kitchen, pulling her long blond hair out of her shirt as she went. She found some leftover pizza in the fridge and ate a slice, washing it down with some orange juice.

Sara stared out toward the living room window. She thought about the WHO press briefing the night before. It reminded her of the briefings at the beginning of Covid19. How casual and matter-of-fact everyone seemed. How optimistic. Yet, after the anger and divisiveness of Covid, the politicization of masking, quarantines, business closures, and even vaccines, how could people ever come together to defeat this organism?

Governments had plans. They always have plans. After the Covid pandemic, the WHO convinced all the countries of the world

to sign on to the Pandemic Accord. It was an opportunity to right the wrongs of Covid19. In December 2021, world leaders resolved to establish protocols to better respond to pandemics and other health crises. It was a once-in-a-generation opportunity. With great optimism, negotiations started in February 2023 and were expected to have a rough draft agreement by mid 2024.

Negotiations bogged down almost immediately because of mistrust and self-interest. Health equity was the biggest problem. Pharmaceutical companies fought against language that would have required them to make technologies available worldwide for the benefit of everyone. The inequities that were pervasive during Covid between and within countries were impossible to overcome in the language of the Accord. The text became so watered down that enforcement and cooperation were impossible.

By mid 2027 and the beginning of a new pandemic, negotiations were still ongoing, and the “once in a generation” opportunity was lost. Without global cooperation and coordination, the world would fight the pandemic much as it had in the past. Countries would continue to act in their own interests independently of each other, following their own pandemic plans. Australia had the Australian Health Management Plan for Pandemic Influenza and its One Health System. The US had the NAID Pandemic Preparedness Plan. Other countries had their own versions, and the WHO still had the Pandemic Influenza Preparedness, or PIP, Framework.

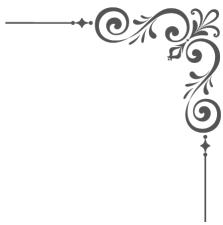
In Australia, TV screens carried images of Prime Minister Townsend and members of the Health Ministry declaring a Health Emergency. Reluctantly, Townsend said they were ”temporarily closing schools to protect the nation’s youngest citizens.” The government was quarantining all incoming flights. They were also recommending people wear masks when in public and to avoid large gatherings. It would be temporary, Townsend said, and as soon as RSV cases started coming down, they would lift the restrictions. He said the Australian people were resilient and practical, and he was confident they would follow recommendations. Of course, the public was divided, as usual, many thinking their rights were being trampled on, while others were angry at those who didn’t seem to “care a hoot about anyone else, much less innocent children.”

Because of mistrust, greed, and self-interest, the world was late in acting. It had become too complacent. RSV was a common

disease worldwide for decades, ebbing and flowing every year, never killing more than an acceptable number of victims. World leaders were also lulled into a false sense of security, satisfied to keep accepting campaign contributions from pharmaceutical companies, who saw no benefit in diverting executive bonuses to pay for vaccine development they probably would never profit from. Consequently, when the new variant appeared, no nation was ready, and action was slow to materialize. The virus had now spread to more than 15 countries, and little progress was being made on developing a vaccine.

Countries were beginning to close their borders - Ecuador, Colombia, and Peru by the last week in August. The US refused to declare a Health Emergency, refused even to acknowledge the Pandemic was serious, and directed schools and businesses to remain open, leaving everyone to fend for themselves. France was in lockdown, and India expected to lock down the following week. The WHO was pleading for solidarity. Global stock markets started dropping.

Alarmingly, resistance to restrictions was already beginning to occur. People had been willing to cooperate in the early stages of Covid19, until they got tired of it all, and conspiracy theories proliferated, along with the fear of the loss of personal freedoms and loss of income. Those beliefs and fears never really went away after Covid and they were quick to re-surface again with the new RSV Pandemic.



14

3 September 2027 Friday
Canberra, Australia
Kirby Institute, Sydney, Australia

The alarm went off and Sara rolled over in bed to check the time. 6:30 am. Gary would be there to pick her up around 8. She had asked Gary a few days before if she could tag along on a trip to the Kirby Institute in Sydney, where he was dropping off some specimens for identification. She wanted to meet with a former colleague of Gary's, a virologist, who knew quite a bit about ongoing RSV vaccine research. Gary had planned to meet him around 1:30 pm, and it was a three and a half hour drive. Gary suggested they get lunch there before the meeting. He knew of a nice little café near the institute that had great European food.

Sara took a quick shower, dried herself off, and dressed. She turned on the TV and scrolled through the channels to CNN, and munched on an English muffin with butter and blackberry jam while she watched the latest news. India was in lockdown, Australia was close to one. Unemployment was rising everywhere. Face masks were strongly recommended, although many people refused to wear them. Worldwide, there were 3,625,000 cases of RSV to date and 290,000 deaths attributed to the new variant. Protests and counterprotests relating to social restrictions were mounting. That angered her more than anything else.

She washed the muffin down with a cup of decaf, put the cup in

the sink, and turned off the TV. She shook her head. “We’re on our way to a catastrophe,” she thought to herself. “And all people can do is argue about f’ing masks. So sad. We just never learn.”

As she turned toward the bathroom to finish getting ready, there was a knock at the front door. She walked over to the door, unlocked and opened it.

“Good morning, Sunshine!” Gary said as he entered, giving Sara a kiss on the cheek.

“Good morning!” Sara returned the greeting. “You’re chipper this morning.”

“Yeah,” Gary replied. “Seeing you does that to me.”

“How sweet…” She smiled, touching his hand and returning the kiss. “I’ll be ready in a minute. Just have to brush my teeth. Did you eat? Want something before we go?” She was in the bathroom, loading toothpaste onto her brush.

“I’m good. Had something before I left. We’ll get some lunch when we get to Sydney.”

Sara finished, gathered up her note pads, recorder, and purse, and tied her hair into a ponytail. “Ok, I’m ready.”

Gary opened the door, and they both walked out. Sara locked the door behind them, and they walked out to his truck, parked just behind her car in the driveway.

“Warm out today,” Sara said as she got in.

“Yeah, the beginning of another long, hot summer,” Gary replied as he got in on his side. He closed his door, started the truck, and backed it out of Sara’s driveway.

Sara and Gary arrived in Sydney at about 11:25. About 2 miles from the Institute, in Eastlakes, Gary pulled onto a side street right off the main thoroughfare and parked.

“This is it. Let’s get something to eat. Like Greek food?” Gary asked as he turned off the key.

“I’ve never had Greek food.”

“You’ll love it.”

Gary got out of the truck, went around to Sara’s side, and opened her door. Sara got out and Gary closed and locked it behind her. They walked back toward the main highway, then turned right onto the sidewalk. There, on the corner, was a charming little bakery. The storefront was all glass with gray-blue vertical

partitions. Overhead, above the entrance, was a sign that read “Born To Bake Greek Patisserie.” Outside the entrance, on either side of the door, was a small round table with 2 chairs. The arms and seat of each chair were striped black and white. A gray-blue four-sided umbrella shaded each table. The whole affair seemed very inviting.

Sara looked at Gary and smiled.

Gary put a mask on, walked over to the front door, and opened it. As he did, the door engaged a little bell hanging above it on the inside, causing it to jingle pleasantly.

“C’mon,” Gary said as he held the door for Sara.

Sara slipped on her mask and walked inside. What she saw nearly blew her away. “Holy moly!” Her eyes widened with surprise. “I want one of each! This is incredible.”

On her right was a long glass case filled with row upon row of more pastries than she’d ever seen at one time.

“I thought you’d like it. I stop here every time I come to Sydney. The pastry is to die for.”

“May I help you?” smiled the proprietor, a bespectacled, short, stout, pleasant-looking woman, as she approached the couple. She was not wearing a mask, but it was evident she was keeping her distance.

“Yes,” replied Gary. “We’d like to see a menu, please. We’re going to have lunch.”

“Ah, wonderful!” the proprietor replied. “Where would you like to sit?”

Sara looked around and noticed there were a few people already there, sitting at tables along one wall. She asked to sit outside. It made her feel a little safer. The weather was warm, but there was a nice breeze, and they could sit under an umbrella.

The proprietor showed them to a table and handed each of them a menu. As they looked through the selection, they joked about their difficulty pronouncing the names and asked for suggestions. Sara settled on the Kreatopita, a rolled pastry with beef bolognese and cheese filling. Gary chose the Spanakopita, also a rolled pastry with spinach, onion, and feta cheese.

After the proprietor went to fetch the pastries, Gary and Sara removed their masks and set them aside. A few minutes later, the woman returned with their lunches and set them down on the table. Sara felt relieved when she noticed the woman was wearing blue

gloves. She quickly cut through the pastry with her fork and ate a piece.

"Mmmm-mmm. This is amazing!" Sara said as she put her fingers up to cover her mouth. "Amazing! How is yours?"

"Good, really good!" Gary replied. "I never had this before. I like it."

"Cut a piece off for me. Let me try it."

"Only if I get to try yours."

After lunch, they ordered a piece of Nutella cheesecake for dessert and shared it, declaring it equally delicious. They sat and talked for a few minutes, avoiding anything serious, just enjoying the moment.

"I guess we better go," Gary said, looking at his watch. "We have to be at the Institute in about 20 minutes."

"Back to reality. Thank you for taking me, Gary. The lunch was great."

They put their masks back on, paid the check, thanked the proprietor, and walked back to the truck.

Twenty minutes later, they arrived at the University of New South Wales, Kensington Campus, and parked in the Botany Street Parking Station. They got out, and Gary retrieved the specimen container from behind the front seat while Sara gathered her notebook and purse from the back seat. They walked out onto Botany Street and then down to the Wallace Wurth Building.

Inside, the two donned their masks again and made their way up to the Kirby Institute on the sixth floor. After getting off the elevator, Gary led the way down a long hallway, passing one office after another. At the far end of the hallway, they turned the corner and found themselves in front of a small, dimly lit office.

Much of the space inside was taken up with stacks upon stacks of books and research papers arranged in piles of various heights. In the corner of the room, in front of a bookcase filled to overflowing with biomedical technical books, sat a young man behind a desk, the swivel chair he sat in angled backward and creaking under his ample weight, as he rested his feet on his desk. He looked to be in his late thirties. His hair, though of average length, looked as though it had never been combed, and his long-sleeved shirt and khaki pants were wrinkled and disheveled. He was running his fingers through his hair, and each time he did, he would dislodge his heavy black rimmed eyeglasses, which he would then re-adjust.

He seemed deep in thought as he leafed through a research paper, and looked up just as Gary and Sara walked in.

"Gary!"

"Hey, Trevor," Gary replied. "Brought your samples."

"Yeh... right, thanks, Gary. I nearly forgot. Be right back." Trevor took the container from Gary and disappeared out of the office.

After about five minutes, Trevor returned. He handed the empty container back to Gary.

"Trevor Murray, meet Sara Campbell. She works for The Australian."

"Hi, Sara Campbell. Nice to meet you."

"Nice to meet you, too, Trevor," Sara responded. They avoided any physical contact.

All three stood there for a few seconds staring at each other, until Trevor realized Gary and Sara had nothing to sit on.

"Oh, sorry, no chairs." He looked around the room. There were three other chairs, but each was piled high with books. Let me see if I can find a couple of chairs." Trevor left the room again and returned a minute later with two folding chairs.

"Here, sit down. Sorry for the mess. I don't usually have people stay when they come here." Trevor unfolded the chairs, moved some of the piles of papers, and set the chairs up. Sara and Gary sat down.

For a few minutes, Gary and Trevor caught up on their lives since they last saw each other. Trevor mentioned he'd been seeing someone new after a breakup with his college sweetheart last year. He said they had a lot in common, and things seemed to be going well so far. In fact, they were going out for dinner after work. Trevor said his sister just took a new position with a law firm in Melbourne. She loved it. They both agreed work was beginning to get more complicated and life more unpredictable - again.

After the conversation began to slow and they were running out of things to talk about, Trevor turned toward Sara.

"So, Sara, you want to talk about vaccines?" Trevor went around to his side of the desk and sat down. "Specifically, why we don't have one yet. Or, more to the point, why we don't have one for infants yet."

"Right," answered Sara. "I know there's a vaccine for older adults..."

“Yeah, Arexvy,” Trevor said. “It came out in 2023.”

“Yes.” Sara paused for a second. “And there’s a maternal vaccine that’s given to pregnant women... RSVpre-F, I think.”

“Right,” Trevor confirmed, “You seem to know your stuff.”

“Yes. But why is it so difficult to come up with a vaccine that can be administered to infants directly?”

“It has to do with the biology of both the host - in this case, the baby - and the virus,” Trevor replied. “Children under six months have rudimentary immune systems. They’re still forming. During those first six months, babies are working off the antibodies they received from the mother during pregnancy. That gives the baby a natural immunity until it can develop its own defenses. But that natural immunity wanes pretty fast after birth. It’s nearly gone after 6 months to a year, and that’s when RSV usually strikes. Children older than six months have stronger formed immune systems, but they can still be at risk. ”

“Wasn’t a vaccine for infants developed fifty years ago?” Sara asked.

“Yeah. In the 1960’s. But the vaccine actually caused serious infections, presumably because of, again,” Trevor emphasized, “the immaturity of the baby’s immune system. Two infants died. All research pretty much dried up until just recently.”

“Why does the protection from the maternal vaccine decline after birth?” Sara asked.

“Yeah, because the antibodies weren’t actually produced by the baby. They’re just there because the mother passed them to the fetus through the placenta. The immune system hasn’t kicked into high gear yet, so the antibodies from Mum start to fade away – again, leaving the baby exposed.” Trevor stopped for a moment. “All this is rather moot right now because the new variant, RSV A2.1, is only marginally susceptible to the new vaccines. We’re almost back to where we were before they were developed.”

Trevor got up. “I’m thirsty. Want a bottle of water? I’ve got some here in the fridge.

“Yes, please,” Sara replied

“Sure, thanks,” Gary added.

Trevor worked his way through the obstacle field of research papers and books, careful not to kick any of the piles over, managed to open the refrigerator door, and pulled three bottles of water out. He worked his way back and handed one bottle to Sara and one to

Gary. He opened his and took a long drink before sitting down again. “This is where the fascinating biology of the RSV virus comes in. RSV has two very important proteins on its outer surface that are essential to its attachment and entry into a cell. They’re called the F and G proteins.”

Trevor got up again. He went over to a blackboard and pulled it closer to Sara and Gary. “Look,” he said, as he grabbed a piece of chalk and drew a sausage-shaped figure on the board. “All around, on the outer surface of the virus, are proteins.” Around the shape of the “sausage,” Trevor drew about forty small circles. Inside half of the circles, he wrote an “F”, and in the rest, he wrote a “G.”

“The G protein aids in attaching the virus to the cell, and the F protein then enters the cell and helps replication.” The G protein is the most variable and is mostly responsible for the formation of variants.” Trevor was pointing to each circle as he described their functions.

Trevor faced Sara to make a point. “Remember all the talk during Covid about the spike protein, how it attaches to a cell, and that we focus on breaking that attachment to produce a vaccine?”

Sara nodded.

“Well, a lot of work has been done on these two proteins, but we still don’t know for sure how the G protein attaches to the cell or how the F protein enters it. That makes it very hard to design a vaccine.”

“That’s the reason we have no vaccine yet?” Sara asked.

“Well, that’s half of it,” Trevor replied. “RSV is a very clever organism. Ingenious, even.” He went back to his drawing on the chalkboard. He used the side of a piece of chalk and drew a thick, long line inside the “sausage. “This is the virus’s nucleoprotein – its DNA, or in this case, its RNA.” Trevor pointed to a spot near the middle of the line, “Here is where its G gene is. The G gene is what makes the G Protein. The variability of the G protein is because of the variability of the G gene. The gene is what really mutates, changing the shape of the protein. And that gene is crazy variable.”

“It mutates easily.”

“Exactly, very easily, in fact. And it gives it a distinct advantage over all other strains. A lot of it is taking place in RSV – A, but RSV in general is highly mutagenic. It evolves fast, and vaccines have a hard time keeping up.”

“And another thing – any long-term persistence of a viral strain

causes the human population to develop a general immunity to it. Then, bingo, when a new strain appears, and there's no immunity, and no protection from it, it can run rampant through the general population and establish itself as the dominant strain. That happened with Covid19. Delta was the established strain with widespread immunity. Then Omicron came along and ran through the population like wildfire."

Trevor then looked straight at Sara and Gary, his expression turning serious. "We are in some sorry shit with this new variant. God help us if it mutates again, and a new variant comes along that's more lethal or more contagious."

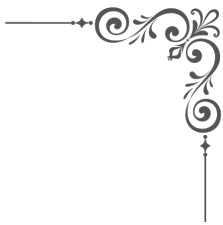
After leaving the Institute, Sara and Gary made their way back to Gary's truck in semi-silence. They exchanged a few words, but mostly were deep in thought. Trevor's remarks were unsettling, but not far from what they were already thinking. What most experts were thinking. Trevor just said it out loud. The words seemed so much worse when verbalized.

As they got into the truck, Sara said, "I need another pastry."

"We can do that," Gary replied. "I don't think the bakery is closed yet," He looked at his watch. 4:15 pm. "Let's stop by on the way back." Gary started the truck. He eased out of the parking lot and drove back out onto Botany Street.

As they drove the short distance back to the bakery, their mood lightened, and the scary thoughts receded further back in their minds. At the bakery, they picked out a couple of pastries and ate them in the truck. On the way back to Canberra, they stopped to get something for dinner, and arrived back at Sara's place around 8:30 pm.

Sara would have liked Gary to stay for a while, but both had to be at work early the next day, so Sara thanked Gary for taking her to talk to Trevor and for the lunch. They kissed goodnight at the doorstep, and Gary left.



15

1 January 2028 Saturday

By January 2028 there were more than 7,500,000 cases of 2027RSV A2.1. The number of deaths stood at 613,258. 2027RSV Strain A2.1 was now responsible for 98% of all cases. Nearly all resulted in hospitalizations. The only good news was that the virus had not mutated again - at least not yet. Although still horrific, mortality hadn't changed from 35% of those hospitalized, or a little over 8% of total cases. Fifty-two percent of the cases and deaths were children under the age of 5. It was a tragedy of global proportions, and there seemed to be no end in sight.

The new vaccines Arexvy and Abrysvo were minimally effective in older adults. There still was no vaccine specifically for infants, although work continued in laboratories around the world. The only vaccine for infants remained the maternal vaccine given to pregnant mothers. It was generally ineffective against RSVA2.1. The monoclonal antibodies, Nirsevimab and palivizumab, were still being administered to infants who were born during or experiencing their first RSV exposure, but had little to no effect.

It was assumed that the phenomenal speed with which the world produced a Covid vaccine would not be repeated with an RSV vaccine. So far, there was only disappointment.

Social distancing, stay-at-home orders, quarantines, curfews, countrywide lockdowns, and restrictions on how businesses operated cut deeply into community relationships. Separating families in their hour of greatest need for connection was

devastating. Mothers were prevented from comforting or even seeing their infant children as they lay in ventilators. Long term isolation and stress led to domestic violence, drug abuse, and suicides. Hate crimes, racism, discrimination, and prejudice spiked. It was Covid all over again, only in a new form.

Class distinction and inequality were never more clear than during the Pandemic. The global elite had more resources with which to comply with restrictions. They could quarantine and social distance on their yachts or country homes, and stock up on food and medical supplies. The poor had to endure isolation, loss of income, and difficulty in accessing food and medical care.

Economies worldwide faltered as businesses closed and workers were sent home or discharged. Enrollment in colleges and universities fell as in-person attendance was curtailed. Closed borders meant no more international students. Businesses that depended on migrant workers shuttered their doors. Restaurants, bars, salons, barbershops, and other businesses that depended on constant patron turnover struggled under distancing restrictions. Sports and entertainment venues, which depended on attendance numbering in the tens of thousands, suddenly lost millions of dollars. Commercial flights lost just as much. International flights were canceled, and distancing recommendations on domestic flights reduced passenger loads. Food prices eventually soared as labor shortages appeared.

Cultural distinctions had a great deal to do with how people responded to the pandemic and how well they accepted controls on their lives. That, in turn, affected the spread of the virus and how well (or how poorly) the Pandemic was contained. The Peoples of Asian countries, in general, had a more highly developed acceptance of social responsibility. As such, they showed more willingness to curtail individual rights in favor of a greater good. They were more compliant. In addition, Asian Peoples had more experience with outbreaks and the measures that were necessary to deal with them. For that reason, Asian countries, including Australia and New Zealand, were able to deal more effectively with Covid and now RSV. They acted earlier, faster, and more forcefully, and had more cooperation with their populations.

The Peoples of Western nations, the European Union, North and South America, in contrast, placed more importance on individual rights and freedoms. There was false optimism, even after the

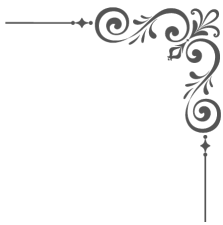
experience with Covid. In fact, because of Covid. Leaders told the people that they had conquered Covid and they would conquer RSV. People were more skeptical than ever of their governments and their leaders' motives. Leaders, in turn, were still skeptical of their own experts. Once again, politics entered the realm of science. Conspiracy theories and misinformation abounded. That had not changed. Even though most of the West had pandemic plans, hubris kept them from implementing them until it was too late. A wait-and-see attitude ate up precious time needed to enact measures meant to control the outbreak.

The lessons learned from the Covid pandemic were not lost or forgotten. They just were not implemented. The haphazard manner in which the international community responded only prolonged the time spent in crippling restrictions. The very policies meant to protect society had social, economic, and political repercussions far beyond what national leaders expected. The world could not come together, not even now. In general, countries were slow to act, and when they did, they did so without regard to any other country and did so only in their own interests. When France locked down, the Netherlands relaxed restrictions. When Italy, Spain, and Greece eased restrictions, India extended its lockdown. The USA started reopening just as Australia closed down again. Then, the USA issued a travel ban at the same time Canada and New Zealand relaxed and the UK downplayed a spike in cases.

After six months of restrictions, the world was already tired of it all. Tired of lockdowns, business closings, stay-at-home orders, and other extreme measures. Economies around the world were nearly decimated. If they continued down the same path, a total collapse was inevitable. Countries had learned that from Covid. They would have to open up. A compromise was the only path forward. Until a vaccine could be found, the world would have to balance deaths with some measures of protection. It was a terrible choice, a heartbreaking one, to be sure, but a necessary one, governments said. Businesses gradually opened up again, borders were opened, domestic and international flights resumed. People were told to return to their normal activities, but with precautions. In the United States, restrictions of any type had been rejected right from the beginning.

For the sake of the world's youngest and most vulnerable inhabitants, people would be asked to continue masking, to practice

safe distancing, to self-quarantine, to do all the common-sense things necessary to stem the spread of the disease. Maybe, if all adults did these things, sacrificed some freedoms for their children, they could get RSV to run its course and die out. The WHO pleaded for cooperation and unity - and sensibility.



16

6 January 2028 Thursday
Canberra, Australia

It was one of the warmest days of the summer so far in Canberra. 83 degrees F. Sara had finally gotten a few days off and was trying to catch up on her house cleaning and laundry. It was amazing how quickly things could get out of hand. She had the washer going with a full load while she ran around pushing dust off the edges of all the fan blades. It was hard to believe that much dust could accumulate in just three months. “Hope I’m not breathing that stuff in,” she thought as she ran the duster along the blade.

Sara heard her phone ring. The ringtone for general calls, “Sweet Home Alabama”, by Lynyrd Skynyrd, was one of her favorites. She liked the upbeat, catchy melody. She had never really thought about the lyrics and was unaware of the dark history behind them. She just liked the tune.

All songs have a history, some more interesting than others. “Sweet Home Alabama” was one of those, one that reached deep into America’s past, and one of capitalism’s greatest failings. The song was written, so the story goes, by Ronnie Van Zant, lead singer of Lynyrd, as a rebuttal to Neil Young’s 1970’s songs, “Alabama” and “Southern Man.” Young, a Canadian artist, was highly critical of the Southern United States, and its legacy of brutal slavery, inequality and racism, and asked, in his songs, when the South was going to acknowledge and atone for the part it played in the tragic

history of American blacks.

Van Zant, who was actually a fan of Young's, was troubled by the Canadian's attack, calling it 'unfair' that Young, as an outsider, failed to recognize that the South also had many positive aspects, and wrongly focused on its mistakes. Van Zant's response was "Sweet Home Alabama," which romanticized the old South and defended its cultural identity. The trouble with Van Zant's lyrics is that they fail to acknowledge that the romantic South was a white male's South, and was only possible because of the inhumane treatment of Blacks.

Sara stepped down off the step stool and looked around for her phone. She found it on the kitchen counter, put the duster down, and picked it up.

"Hello."

"Sara Campbell?" asked a voice on the other end.

"This is Sara Campbell," Sara replied.

"My name is Jeffrey Torrance, Ms. Campbell. I'm from NBC News here in Sydney. How are you this morning?"

"Fine," Sara replied, a little perplexed why she was getting a phone call from NBC.

"I'll get right to the point, Ms. Campbell. I know you must be busy right now."

Sara looked over at her pile of laundry on the floor.

"NBC News would like you to work for us, Ms. Campbell," Jeffrey Torrance said.

Sara's mouth dropped open. She wasn't sure she had heard right. "You're offering me a job with NBC News?"

"Yes, that's right," Torrance replied. "NBC News has been watching you, and we're very impressed with your work. Especially the reporting you've been doing concerning the outbreak of RSV. You seem to have a firm grasp of the issues. Your understanding of medicine and health issues, the science surrounding the disease, and your thoroughness in reporting it is remarkable. Would you be willing to meet with me in Sydney to talk about work with NBC?"

Sara was still in shock. "A reporter for NBC News!" swirled around in her head, then her mind went blank for a moment.

"Ms. Campbell?" The voice on the phone brought her back. "Are you still there?"

"Ah... yes. Yes, Mr. Torrance. When would you like to meet?" Sara asked.

‘Would you be available Monday?”

“No…No, Monday won’t do. I’ve got a deadline to meet. How about Tuesday?”

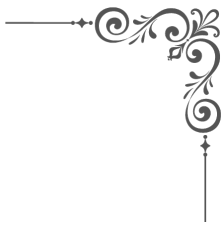
“Tuesday will be fine. Say, about 11 am? That should give you enough time to get here. Do you need directions?”

“No, I know where the NBC offices are in Sydney. I’ll see you at 11 am, Mr. Torrance.” Sara was ecstatic but tried not to show it.

“Good,” Mr. Torrance said. “Just ask the receptionist to call me when you get in. I’ll come down to meet you.”

They said their goodbyes, and Sara hung up.

“NBC News.” Sara smiled. “Yes,” she shouted as she jumped for joy.



17

11 January 2028 Tuesday
NBC Universal Australia
Sydney, Australia

Sara arrived at NBC Universal about fifteen minutes early on Tuesday. She stopped at the front desk and asked the receptionist for Jeffrey Torrance. The receptionist made a phone call and seven minutes later a middle-aged man with graying hair in a dark blue business suit emerged from the elevators and greeted Sara.

"Mr. Torrance?"

"Ms. Campbell. Good to see you. Please, come with me up to my office."

They went back to the elevators and up to Level 32. Torrance led Sara to his office. Once in, he offered Sara a bottle of water, and they settled into some comfortable chairs.

"Have you had time to think about our offer?" Torrance asked.

"I have, but I'd like to know more about it. What would I be doing?"

Torrance proceeded to explain how NBC needed a person with a general knowledge of science, but particularly in the life sciences, someone with a good understanding of medicine and healthcare, someone who knew what questions to ask, how to ask them, and wouldn't stop until she had all the facts. NBC wanted a journalist who could separate fact from fiction, weed out conspiracy theories and misinformation, and question everything. Finally, NBC needed

someone who could write an article that was thorough, readable, and understandable by the average person and conduct interviews on camera.

"We believe that person is you, Ms. Campbell. We've seen your work and talked to people who know you," Torrance said. "You would be based here in Australia, but you would be traveling to wherever in the world the news is, sometimes on very short notice. It is a demanding job, but ultimately, a very rewarding one."

Torrance went to his desk and retrieved a file folder. He opened it, took out a paper, and handed it to Sara.

"This is what we are prepared to offer you."

Sara read through the paper. The terms and salary she was being offered were more generous than she could have ever imagined. She looked up at Torrance.

"This is a lot to take in, I know, and I understand you'll need time to digest it before giving us an answer. It means big changes to your life." Torrance paused. "But we would like an answer by the end of the week."

Sara promised Torrance she would give the offer serious consideration and get back to him as soon as possible. They spoke for an hour more about the Pandemic, climate change, the deteriorating political environment, the slow death of the Great Barrier Reef, and how she felt about the future.

At the end of their meeting, Torrance escorted Sara back down to the lobby. They shook hands, and Sara left the building. She felt as if she was floating three feet off the ground. "This couldn't be happening to her," she thought. Her mind was racing a mile a minute, and she barely remembered the walk back to her car. She sat in her car for a few minutes, collecting herself, then called Gary and told him about the offer.

"That's great, Sara. Amazing."

"So, you think I should take it?"

"Why not? This is what you've wanted, what you've talked about ever since you became a reporter. You deserve it."

"I know, but it'll mean I'll be away more. We may not see each other as much," Sara argued.

"Sara. Take the job!" Gary shot back. "We will make this work. If we want to be together, we'll find a way. I don't want you to ever be sorry you turned it down. Look, if it doesn't work out, you can always quit and go back to being a star reporter for The Australian.

You want this, don't you?

"I do, Gary, very much."

"Then tell him you'll take the job."

"Thank you for listening to me, Gary. For the advice. I love you."

"I love you too. I'll stop by tonight. I'll bring a pizza and some wine, and we'll celebrate."

"See you later."

After they hung up, Sara called Torrance back.

"Mr. Torrance, I'll take the job."

"Wonderful! How soon can you start?" Torrance asked.

18

2 April 2028 Sunday

A new variant of RSV A2.1 had been identified. Testing hadn't detected the new strain until it had been in circulation for a while. It was first found in New York City, then in Chicago. Within 5 weeks 2027RSV A2.2 had spread around the world, replacing 2027RSV A2.1. Genomic sequencing of the new variant revealed 13 mutations in its genetic code, allowing it to both evade detection and enter cells more easily. Its target remained the same – newborns and the elderly. This new strain was more deadly and more contagious. 100% of the cases now required hospitalization. The mortality rate jumped to 95% of hospitalizations. Only 5% recovered. It was the worst news anyone could have imagined.

Sara had settled into her new job. She was busier than ever, but she loved it. She worked mostly from home, communicating over the phone, through emails, and via Skype. She trekked to Sydney for meetings once a week to discuss and receive new assignments and review current work. Her focus was the Pandemic, interviewing politicians, molecular biologists, virologists, doctors and nurses, and ordinary people having to cope with the "new normal". She even traveled to the CDC in Atlanta, Georgia, and the WHO headquarters in Geneva, Switzerland, when news of the new variant broke.

Seeing Gary became more difficult. He was busier now, too.

They talked on the phone almost daily and tried to have dinner once a week, although more often than not, one of them had to break the date because of work.

19

27 April 2028 Thursday
NBC Universal Australia
Sydney, Australia

It had been a long meeting this week. There was no shortage of issues plaguing the world, or ideas for news stories. The Pandemic, of course, took top spot, and it seemed to be affecting almost everything else going on in the world. Numbers were beginning to lose their meaning. There were now 750,000 new cases of RSV in the world every day. A total of 123,084,520 cases total, since the Pandemic began.

Protests demanding world leaders do something about the heartbreaking carnage were mounting. Counter-protests against re-establishing strict controls countered. Political leaders screamed angrily at one another. Finger-pointing and blame become commonplace. Supply chains for all goods were impacted. Economies were struggling. Healthcare systems were in disarray.

All the news people were wearing masks. It was required in the building. They didn't like it, but it was company policy, and they believed they were doing the right thing. Some of them had young children, and no one wanted to pass the virus on to them. On this day, as they did each week, they filed into a large room where they could hash out what would be the most relevant news stories for the day.

Each of the journalists made a case for one or more stories they

felt newsworthy. They presented their supporting facts and argued for publication. After narrowing down a long list of potential news stories and dividing them up into their respective categories, the section editor handed out their assignments. Although Sara felt she made a solid case for writing a piece conveying to the public the psychological and physical pressures endured by healthcare workers, her editor told her he already had an assignment for her. He asked her to see him after the meeting.

"You wanted to see me, Jeffrey?" Sara asked as she entered Jeffrey Torrance's office.

"Come in, Sara," Jeffrey returned. "Sit down."

"Anything wrong?"

"No...no. Everything's fine. As fine as it can be in this fucked up world. I've got something for you. It may turn out to be the biggest story of the Pandemic... or it may turn out to be nothing."

Sara leaned forward in her seat. "What is it?" Her interest was definitely piqued.

"There have been reports coming out of far northwest Canada," Jeffrey continued, "unconfirmed so far, that in some remote villages near the Arctic Circle, there are children who are immune to RSV. Some of it comes from social media, so not entirely reliable, but one report is from an eyewitness, a hunter from Germany who was in the area for a week to do some hunting. Funny thing is, this hunter didn't tell anybody for a week after he got back, and he just told his doctor in passing - in the middle of a conversation. Matter of fact, like, 'oh, by the way, I heard kids don't get the virus,' and go on with the conversation. Like it's no big deal."

Sara's eyes widened, and she smiled. "That would be incredible!"

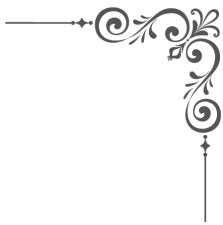
"It would be, if it's true," Jeffrey responded. "Anyway, the doctor immediately notified the WHO. The WHO thinks there may be something to it. Enough, at least, to investigate it. They think the eyewitness's story is credible - strange, but credible. So, they're sending an investigator. The Public Health Agency of Canada didn't know anything about it. But they were interested. Since it was their country, they decided to send someone, too. The CDC here in Australia, it seems, has some sort of agreement with Canada, so they're sending an epidemiologist, too."

"We've gotten approval for a journalist to go along with them to investigate this thing. You'll be the only one. Get the personal angle

as well as document the investigation. Could be a real story here. We want you to go."

"When are we going? Sara asked.

"Three days. We already purchased your ticket."

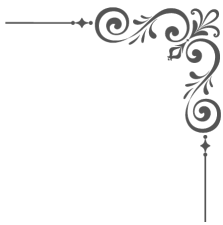


Part 2

Symbiosis

All nature is linked together by invisible bonds, and every organic creature, however low, however feeble, however dependent, is necessary to the well-being of some other among the myriad forms of life.

George Perkins Marsh, Man and Nature: Or Physical Geography as Modified By Human Action, 1864



20

29 April 2028 Saturday
Canberra, Australia

Gary drove his truck over to Sara's place the evening before. It was easier that way. They had an early departure in the morning, and then a long, non-stop flight to Vancouver, British Columbia, Canada.

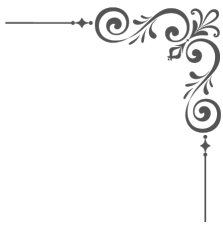
Sara was surprised to hear that Gary was the epidemiologist Australia was sending, but she knew he was the logical choice. He had the most field experience with viruses and was the most qualified. She was also pleased and relieved. It would be a long trip, and she didn't know how long they would be gone. They would be going deep into the wilderness of far north Canada, and she wasn't sure what to expect. It was nice to know she was going with someone she knew.

She was just a little annoyed Gary had not told her about this newest development. That she learned it from her boss. Gary apologized, but felt he was in a bit of a spot. The WHO did not want the news to get out that there might be an anti-viral until they had a chance to check it out. A premature leak could cause a stampede of people to the area, creating chaos, harm to the people there, and possibly derail their investigation. Everyone was sworn to secrecy.

Gary dragged all his luggage in behind him and set it by the door. Sara had dinner ready. After they ate, they sat on the couch

and watched TV, and talked about the trip. They talked about what they hoped to discover in Canada. Could it be true? Could there really be a natural immunity to the virus? Were there really children out there living through this terrible disease? It seemed too good to be true. Both were excited by the prospect.

Before they went to bed, Sara called a taxi service and made arrangements for a cab to pick them up at 3 am.



21

30 April 2028 Sunday
Yellowknife, Northwest Territories Canada

The cab pulled up to Sara's home at 2:54 am. The driver tapped his horn twice to let them know he was there. Two short beeps so as not to disturb the neighbors. Sara and Gary rolled their luggage out to the cab and the driver put them in the trunk. Sara went back and made sure all the lights were off, then closed and locked the door. They both got into the cab, and the driver drove them the 170 miles to the Sydney Airport.

They arrived at the airport in plenty of time, so they had breakfast and spent time looking in the airport shops. Forty-five minutes before departure, they went through security and made their way to Gate 56. They boarded their plane and departed Sydney on schedule, and fourteen hours and thirty-five minutes later landed in Vancouver, British Columbia, Canada.

By the time they disembarked their plane at Vancouver International Airport, it was 6:35 pm. They were already tired, but had another plane to catch at 8:55, to Yellowknife, in Canada's Northwest Territories.

After making their way through customs, Sara and Gary collected their luggage and walked to Gate C29. On the way, they stopped at a Starbucks for a coffee and a bagel and, at 8:30 pm, boarded Air Canada 8480 for the last leg of the trip, a two-hour and twenty-minute flight - 1,422 miles.

In Yellowknife, they would link up with the epidemiologists from the WHO and the Public Health Agency of Canada. Yellowknife would be the base of operations for the next week or two.

Yellowknife lies astride the 62nd parallel, about 250 miles south of the Arctic Circle, on the 6th largest lake in the world – Great Slave Lake. Yellowknife is the capital and largest community of the Northwest Territories, with a population of about 25,000, twenty-three percent of which is Indigenous. The area, of which Yellowknife is a part, is the traditional homeland of the Yellowknives Dene First Nation. The government is the area's largest employer. Yellowknife has a nightlife, plenty of restaurants, hotels, and an excellent infrastructure. The healthcare system is first-rate, with Stanton Territorial Hospital, acute care, diagnostic and lab services, a primary care center, and health clinic.

Yellowknife also sits on the edge of a vast circumpolar forest biome spanning 8 countries, the Great Northern Boreal Forest, representing 30% of all forests worldwide. It is filled predominantly with conifers, with a lesser number of broadleaf deciduous tree species.

The airport is situated on the north shore of Great Slave Lake, on rugged, boggy terrain, large rock outcroppings, and vast peatlands, peppered with thousands of small ponds and low, water-filled areas common to Boreal forests. The airport, only 3 miles from town, is small by most standards, but handles air traffic for seven airlines and is the biggest airport in the Northwest Territories. Yellowknife is a major hub for all of northern Canada.



It was 12:21 am when Sara and Gary landed in Yellowknife.

Sara, exhausted, slept the whole flight to Yellowknife from Vancouver. Gary napped off and on. He was awake to see smoke plumes from the dozens of forest fires that stretched in a vast semicircular arc to the northwest, north, and northeast of Yellowknife. The sight reminded him of the devastating fires of 2023, when 1100 fires burned out of control in the Northwest Territories, forcing the evacuation of the entire population of Yellowknife in August of that year. Twenty thousand people had to find safehaven somewhere else. Not an easy task when the nearest evacuation center to Yellowknife was 621 miles away. Extreme

dryness and the hottest year on record globally combined to create a perfect storm of destruction.

As the plane circled around and started its descent toward the airport, Gary was able to make out dozens more wildfires to the south of Great Slave Lake, and to the northwest along the Mackenzie River. The smoke seemed to be drifting south in the direction of the US-Canada border and, in places, nearly obscured his view of what seemed to be an incredible and nearly limitless forest.

The jolt of the plane hitting the runway shocked Sara into wakefulness. She lifted her head off Gary's shoulder and looked up. Gary looked over to Sara and whispered, "Hey, sleepyhead. We're here."

They both sat upright and collected themselves. The plane braked and slowed down. It then turned off the runway and taxied to a stop near the terminal.

The passengers in front of her, a young couple with a small child, got up and walked toward the exit door near the front of the plane. Gary stood and stretched. Another couple behind them stood up, grabbed bags from the overhead storage, and walked toward the front. Gary looked behind them. No one else. He pulled their bags down and stepped out into the aisle. Sara stood up, stepped into the aisle in front of Gary, and started toward the front.

When Sara exited the forward door, she was bathed in sunlight. She was surprised for a moment, then realized it was summer here and light twenty-four hours a day this time of year. She thought to herself, "Land of the midnight sun." She was glad she had brought a nice warm coat. Even though it was light out, the air was a little chilly.

They descended the stairs from the plane, stepped onto the tarmac, and looked around. Small airport. But nice. No crush of people pushing and shoving to get off the plane. No crowds.

The terminal was quiet, save for a handful of people. Gary saw it first after they passed through the terminal doors. A giant life-size sculpture of a polar bear chasing a seal. The main carousel. He had read about it in the airport brochure.

Their luggage was already there. Gary walked over to it and pulled Sara's luggage off for her, and then grabbed his. They both walked toward the main entrance, exited as the doors automatically opened, and walked toward the taxi stand. The first one in line

pulled up to them and stopped. The sign on the side read “Aurora Taxi.” The driver popped the trunk, then got out and went around to the other side of the car. Gary helped him put the luggage in the trunk.

“Where to?” the driver asked.

“Explorer Hotel,” Gary replied, as they all got in.

The driver left the airport terminal and turned right onto Old Airport Road and drove the 3 miles into town. He turned left onto Franklin Avenue. They were surprised to see so much traffic. It was after 1 am, after all.

The driver turned left off of Franklin onto 48th Street, then made the next right onto 49th Avenue and pulled up to the front of the Explorer Hotel. It was a modern-looking, eight-story-tall building with stone columns along the front.

Sara was impressed. “Nice,” was all she said as she looked up and then around. Up here, a thousand miles from anywhere, she hadn’t expected to see this. But then, the area had a lot to offer – incredible natural beauty, wilderness lodges, wildlife, territorial and national parks, waterfalls and thundering rivers...and, of course, aurora viewing in the fall, winter and spring.

The driver got out, rushed around to the back of the taxi, and removed the luggage. Gary paid him, and he drove off. The two travelers picked up their bags, piled them on top of their luggage, and rolled everything through the glass entry doors and into the lobby.

Inside, the area was spacious and inviting, and flooded with natural light from outside. A few people were coming and going, but otherwise the lobby was empty. A clerk welcomed Gary and Sara from behind the front desk. They walked over to the counter and parked their luggage and bags in front. Gary told the clerk he had reservations, gave his name, and took out his wallet while she looked up the name on the computer. She nodded as she confirmed the reservation and took his business credit card and ID. She completed the reservation and handed him his key. The clerk then went through the same procedure for Sara. Since their respective employers were paying separately, they had to reserve separate rooms, though they managed to get adjoining ones on the 3rd floor.

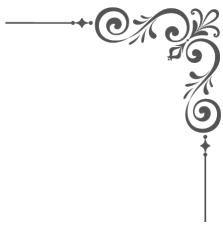
The reservations were for a week. Long enough, they hoped, to establish whether or not the rumors of immunity had merit. If they needed more, they would extend their stay.

Gary asked if there were any messages. He knew his counterparts from the US and Canada were supposed to stay here also and assumed they had already checked in. The clerk looked below the counter and retrieved a note. She looked at it to be sure she had the right one and handed it to Gary. Sara looked on as Gary read it.

“They’re both here,” he said to Sara. “They want to meet in Keith Tremblay’s room at 9 am.”

Sara groaned. “That doesn’t give us much time. I’m going to bed.”

The two found their way to the elevators and went up to the third floor. They kissed and went into their separate rooms to get a few hours' rest.



22

1 May 2028 Monday
Yellowknife, Northwest Territories Canada

The alarm on her phone went off at 8:15 am. Sara rolled over, reached for her phone on the night stand and shut it off. She sat up on the edge of the bed for a minute, then got up and dressed. By the time Gary knocked on her door at 8:55, she was ready to go. She grabbed her notepad, just in case, and opened the door.

"Morning," Gary said through his mask, as Sara stepped out into the hall and closed the door behind her.

"Morning," Sara returned. She slipped her mask on and adjusted it. They started for the elevators.

"How'd you sleep?"

"Pretty good. You?"

"I think I was out as soon as I hit the pillow. Slept straight through."

They stepped onto the elevator and took it up to the 4th floor.

The elevator chimed as it stopped on the 4th floor, and the door opened. They got off and walked down the hall to room 425. Gary knocked on the door. A moment later, a woman opened it. She was African American, tall, thin, attractive, mid-forties, with long black hair that fell straight down over her shoulders. She was dressed in jeans and a loose-fitting blouse that went down past her hips.

"Good morning," she said with a slight smile, and let them in. She had no mask on.

They refrained from shaking hands as Gary and Sara passed by her into the room.

“Have you two been testing yourselves regularly?”

“Yes. Negative, so far,” Gary replied.

“Yes, same here. Negative.” Sara said.

“You can take your masks off, then. We’ll just keep testing and be careful. We’ll wear them when we’re in close quarters around other people,” the woman said. “How was your trip?

“Long,” Sara replied, “but otherwise uneventful.”

There was another man standing at the far end of the room near the window. He looked to be about 30 years old, slight built, dark hair down to his shoulders and black rimmed glasses.

“Hi,” he said as he walked over. “I’m Keith Tremblay, Public Health Agency of Canada.

“And I’m Constance Weston from the WHO.”

“Hi. Gary Sanders, CDC, Australia.” Gary said, and then gestured toward Sara. “And this is Sara Campbell, NBC News.”

Sara smiled. “Hi.”

“We ordered breakfast in so we could sit and talk,” Constance said. She looked over toward two carts containing a selection of breakfast items. There were trays of scrambled eggs, bagels, bacon, and fruit. A carafe with orange juice sat on the counter. “Help yourselves. Plates and silverware there, cups and coffee are over here.” She pointed to a table with a coffee maker.

As everyone filled their plates, Constance outlined their task and responsibilities. As part of the World Health Organization, which was overseeing information flow and coordination of the Pandemic response, it was typical that the WHO representative coordinate the investigation. It was clear, though, they were all seasoned field investigators and would work as one, dividing up the workload. “We’re here for a week to start. A week to find out if there is any merit to the reports of immunity. So, we’re not going to be able to do everything... or see everybody. If we find something here, we can stay as long as we need to.”

Constance walked over to a chair with a cup of orange juice and a buttered bagel and sat down. “The reports came from a hunter who visited Hay River and Fort Providence, and a couple of smaller communities in between.”

“Where are these communities?” Sara asked

“On the other side of Great Slave Lake,” Keith replied.

Constance continued. “I thought we could focus on those towns first, look into the health records of all the RSV admissions – the young children and infants mainly – and see what we find.”

“We’ll need to see RSV tests, T cell, and antibody data,” Gary added. “And see if any of the RSV work includes genome sequencing to establish that they had RSV A2.1 or 2.2.

“Right, that’s a good point. Just so we’re comparing apples to apples.

We want to know everything we can about their treatment,” Constance concluded. Then, we want to know the outcome for each.”

“By outcome, you mean, did they die or not?” Sara clarified.

“Yes. If they survived, we need to find out why. We need to find out if there’s anything else in the blood or urine that’s not normally there. Blood chemistry is important. We’ll also have to find out everything we can about their personal life – family history, diet, home remedies – everything.”

“We’re going to have two kinds of records too – clinic and hospital,” Gary said. “The clinic visits are going to be less serious than the hospital records. We’ll need to check hospital records to see if any of the clinic cases wind up in there, and then follow them to conclusion in the hospital records.”

“Good point,” Constance said.

“And maybe we can compare it to data we can get from people who have not tested positive for RSV. See what their immune systems look like compared to those that were infected.” Keith added.

“Right, so...

Sara stopped them. She wasn’t sure she understood how all this fit together in a logical sequence. It all seemed so haphazard. “You three are used to investigating things like this. It’s your job. I know you have a logical stepwise procedure. It would be helpful to me if you could lay this out for me, step by step, and fill in what you’re going to do at each step.”

“That would help us too, to organize it,” Gary said. “Who’s doing what. We don’t have a lot of time, and these communities don’t look it, but they’re not close together. We may have to charter a plane to cut down on the time.”

“Sara, start writing,” Constance said. “We’ll keep it as a guide.

Sara started writing as Constance clarified how they would

proceed. First, they would gather together all the records of patients who tested positive for RSV. Then go through them one by one. If there was a record of T cell and antibody assay, they would get that. Second, the team would determine the virus variant and, hopefully, get sequencing data. Third, they would determine the intervention. Was it a clinic visit or a hospital admission? If it were a clinic, did the patient go home and receive home care, or was the patient referred directly to a hospital? If the patient went home, what kind of care did she or he get? If the patient went to a hospital, what kind of care was received there?

"We need to see bloodwork," Constance continued, "immune system assays, vitals, and pharmaceutical interventions. If it were a clinic visit, we need to check if that patient wound up in the hospital later and follow it from there. Fourth, what was the outcome? We should be able to do all the record checking at the hospital through online medical records, and through interviews with the health professionals involved."

Constance stopped for a moment. "Is there anything else?"

"Family history," Gary said. "We need to know the family medical history, diet, everything about who the patient is and how he, or she, lived. And we need to document that for as many patients as we can."

Sara was scribbling as fast as she could.

"Do we only want to look at patients who survived?" Keith asked.

"No. We want both, because we want to be able to compare the two and see if any differences might account for the outcome." Gary answered.

"Exactly," Constance agreed. "We also want to check family members, anybody who has had close contact with the patient, who did not come down with the disease, and check their T cells, antibodies, and check for antigens.

"Lastly, we need to look at people who did not have contact with the patient, who did not come down with the disease, never tested positive for RSV. Look at their T cells, antibodies, and antigen presence." Constance stared off at the wall, her eyes squinting a bit, and her jaw set. "I think that's it. If you can think of something else, let me know."

"Just one thing, Gary piped up. "Make note whether they are Indigenous or not, because there could be a huge difference in

lifestyle, diet."

"That might be one good way to compare them from the get-go." Constance agreed.

"Should we split up?" Keith asked. "Interview at the same time as we look through the records? I know we should interview families of patients who died, too, but maybe we should start with those who survived. We could separate the records into outcome, and then two of us could interview the survivor families while one of us goes through the records. Then we could get data on people who were never infected. Might be faster that way."

"Let me know if there is anything I can do to help." Sara offered. "I know I'm just here as a reporter, but I'd like to help if you think there's something I can do."

"Thank you, Sara. We may take you up on that." Constance replied. "All right! Let's finish up here and get over to Stanton Territorial.

23

Because Sara wanted to talk with clinicians and get their take on the pandemic and its local impact, she asked to be dropped off at a car rental on the way. She told Constance she would meet them back at the hotel in the evening. She also asked Gary to call her if anything important came up. He said he would.

Stanton Territorial Hospital sits with its back to Frame Lake and looks like it sprang up from the land it sits on. Its design is crisp and clean, yet reflective of the Aboriginal culture of the area. The interior walls and floors of the five-story facility are filled with native colors and design patterns inspired by First Nations Bands. Images of native culture are ever-present throughout the building – on the floors, the walls, and the ceilings. The culture of the area is evident in the patient-centered health care and healing practices. Respect for the transcendent nature of Indigenous tribes' connection to the land is apparent in the Holy Room reserved for spiritual ceremonies. Stanton is run by the Northwest Territories Health and Social Services Authority and is the largest in the Territory, with all the latest equipment and services.

Constance, Gary, and Keith arrived at the hospital at about 12:30 pm. Keith had already called ahead and made arrangements with the Hospital Administrator to have someone available in Records to help them gather information on RSV cases. After checking in with the Administrator, they were led to a small office

nearby. The sign outside the door simply said “Records.”

The administrator tapped twice on the door and then opened it. The room was windowless, the only light from outside the room penetrating the interior coming from the frosted glass on the entrance door. On all four walls, save for the space taken up by the door, were floor-to-ceiling shelves containing tens of thousands of hospital records, tightly sandwiched together. There did not appear to be a space anywhere between the files to allow for one more file to fit in. Overhead, hummed an old ceiling fan and two rows of brightly lit LED lights.

In the middle of the room was a large wooden desk, at which sat the Records Specialist, a middle-aged woman of native origin, wearing a colorful print dress and a denim jacket. She was typing furiously while staring intently into a large computer screen in front of her.

Stacked around her, on top of the desk, as well as underneath, were piles of records of varying heights, apparently the subject of all the typing. At one end of the desk was a bin for incoming and outgoing files, and at the other end, a bin for mail.

As the Administrator and the three Investigators approached her, the woman, Mrs. Nungak, looked up through colorful rimmed glasses and smiled. Her face was round and darkly tanned, and her wide, pleasant smile revealed a missing front tooth, which made it difficult to avoid staring at. She stopped what she was doing and welcomed them in. The Hospital Administrator introduced her to Constance, Gary, and Keith, and told her why the three researchers were there, and asked her to provide them with whatever information they needed. The Administrator then excused herself and went back to her office.

Constance asked Mrs. Nungak if all the RSV cases from Yellowknife, Hay River, Fort Simpson, Fort Providence, Inuvik, Baker Lake, and Whitehorse could be retrieved.

The woman shook her head. “No. I can pull up records for all those cities except for Baker Lake, Inuvik, and Whitehorse,” Mrs. Nungak said. “Those three cities are outside The Northwest Territories. Unfortunately, each Territory and Province has their own Electronic Health System, and they’re not linked. There’s no countrywide Electronic Health Record System yet. You’ll have to contact someone in those Territories to get those records.”

“Well, that’s going to complicate things,” Constance said.

Keith volunteered to contact health officials at Inuvik, Baker Lake, and Whitehorse and see if they would send copies of their records to him at Stanton. “Why are you interested in Whitehorse, Baker Lake, and Inuvik?” He asked Constance.

“Just trying to get some perspective. See if we get the same pattern,” Constance said. “Just get Baker Lake and Inuvik, if you can. I’ll check with Whitehorse. I’ll also get records from Fairbanks while I’m at it. I know they’re outside our area of investigation, but they’re bigger cities, less isolated, and closer in demographics to the average North American City. They might be good for baseline data.”

They also have a fair number of Indigenous residents,” Gary added. “I’ll start on Stanton’s records.”

“You brought up the Indigenous population before,” Keith said. “You think there might be something there?”

“Just a hunch,” Gary replied.

“Interesting,” Keith said. It’ll give us another perspective to compare. In any case, when I’m done with Baker Lake, I can work with you on Stanton, Gary. I think it’ll go faster if there’s two of us on it.”

“Thanks.”

“Sounds good,” Constance said. “Meanwhile, I’m going to see if I can get the ball rolling on the records for Whitehorse and Fairbanks.”

“Do you want individual records?” Mrs. Nungak asked Gary.

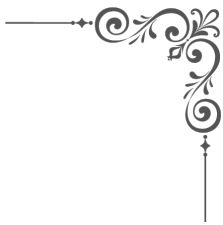
“Not yet,” Gary answered. “All we want to do now is see if the data indicates there’s an immunity. For now, let’s just get numbers for total cases, hospitalizations, and outcomes. Break them down into Indigenous and Non-Indigenous, if you can...”

Mrs. Nungak nodded, said she could break out the data into Indigenous and Non-Indigenous patients.

“Good,” Gary said. “Then we’ll separate the data into adults and children under five. After we’ve looked at the overall numbers, we can decide which cases to look at and get into the details of each case. The numbers should tell us where we go next.”

“Alright, you’ve got it under control. I’ll check back with you later,” Constance said, and then turned and walked out, followed by Keith.

“OK, let's see what we can find, Mrs. Nungak.”



24

1 May 2028 Monday
Yellowknife, Northwest Territories Canada

Sarah spent the day driving around Yellowknife, talking to residents. She wanted to know how people were coping with the Pandemic. Even here, in the far north of Canada, near the arctic circle, a thousand miles from the nearest large urban center, people couldn't escape the disease. Yellowknife seemed no different than a city anywhere else. People went about their lives as best they could. Few infants or toddlers were evident. It was apparent there was no consensus about masks. Some people wore them, others refused, although it seemed Native Americans were more inclined to accept them. People would stop on the street, shake hands, and talk to one another. Others would keep their distance. Some restaurants required masks and distancing, others had no such restrictions. What made it so hard to protect young children was the fact that most older children and adults were unaffected by RSV, so they felt little need to cover up. They gave little thought that they might still be carrying it to an unprotected child, though.

People were keenly aware that the disease was taking their young, but the reasons given for the tragedy varied depending on who Sara asked. Some people understood it was a natural mutation, some believed the government was responsible, others thought God was punishing a sinful world. Regardless of the causes people told themselves, there was still anguish over the loss, and Sara could feel

it.

Healthcare workers at the clinics Sara visited were happy to talk to her, but had little time. She had to be satisfied talking in between patients. She learned that RSV cases had been steadily rising over the past year. When the new variant appeared suddenly, the number of clinic visits per day exploded. Parents still hoped the clinics could help. But then, as the severity of the illness increased, parents started taking their children directly to the emergency room instead, bypassing the clinic. Numbers started to decline in clinics but rose in emergency rooms. The clinics were not doing much more than providing antigen tests to confirm RSV. They assumed most of the cases were now the new variant and said deaths from RSV were on the rise.

One thing about the cases was very odd, all the doctors said. There were almost no RSV cases among Indigenous children. Regardless of the clinic she visited, Sara received the same response. The overwhelming majority of visits for RSV illnesses were from Non-Indigenous children. Always had been, even before the Pandemic. When the Pandemic hit about a year ago, the clinic personnel assumed they would see more Native American children with RSV. They didn't. There was no change. When the new variant hit, cases skyrocketed...but not for Native Americans. Only for Non Natives. There was no change in the number of cases for Indigenous children. And they hadn't heard of any Native American deaths from RSV. None at all.

In fact, they never did see Native American infants with RSV, even before the pandemic.



It was after 7 pm before Gary, Keith, and Constance were able to pool their data. The Electronic Health Records system in Nunavut Territory was down for more than two hours due to a bad storm. Constance had to make more than just a few phone calls, first to the CDC in Atlanta, and then to Yukon Health and Social Services to get permission to access and retrieve RSV data for Whitehorse. Fairbanks health data was easier.

The three met in an empty office on the hospital's third floor and started separating out the raw numbers they needed from the complex of data they received. The numbers from Yellowknife, Hay River, Fort Providence, Fort Simpson, Inuvik, Baker Lake,

Whitehorse, and Fairbanks were all lumped together. Only children were considered.

Total RSV Cases: 309
Total Hospitalizations: 246 (79.6% of Total RSV Cases
Total Deaths (Hospitalizations): 234 (95% of Hospitalizations)
Total Discharged: 75 (30% of Total Cases)

They stared at the numbers in disbelief. Looked at each other, then looked back at the numbers. They said nothing for nearly ten seconds.

"The data is good. I'm sure of it," Keith said.

"What's the average hospitalization rate now for RSV A2.2 globally?" Constance asked.

"100%," Gary replied.

"And here we have only 79.6%. 20% less than everywhere else in the world. That's odd, very odd. Almost unbelievable.

"And what's the mortality rate for hospitalizations worldwide right now, from RSV A2.2?"

"95%" Gary said. And 95% up here. So, the number of hospitalizations that resulted in death is the same as everywhere else..."

"But the total number of children who contracted RSV, and were hospitalized..." Constance continued the line of thought.

"Is way down from what it is everywhere else," Keith concluded.

They looked at the numbers again. Keith recalculated the numbers a second time. "The numbers are right."

Gary started looking back through the data and started scribbling. "Breakout the numbers first into Indigenous and Non-Indigenous, then children, then hospitalizations, deaths, and discharged. Leave out the adults again."

IC: Indigenous Children
No. Cases: 63
No. Hospitalized: 0 (0% of Ttl cases)
No. Deaths: 0 (0% of Ttl Hospitalized)
No. Discharged: 63 (100% of Total cases)
NIC: Non-Indigenous Children
No. Cases: 246
No. Hospitalized: 246 (100% of Ttl cases)
No. Deaths: 234 (95% of Ttl Hospitalized)
No. Discharged: 12 (5% of Ttl Hospitalized)



They looked at the numbers, then looked at each other.

"Holy shit!" Keith spoke for them all. They were stunned. "You know what that means?"

"Indigenous people are not getting sick enough from RSV to go to the hospital."

"And they're not dying! Virtually every hospitalization is a Non-Indigenous child, and every death is a Non-Indigenous child," Constance said as she stared again at the numbers, as if somehow they might change.

They all smiled from ear to ear. To the uninitiated, it might have seemed strange, cruel even, that these investigators appeared jubilant over the deaths of so many children; in reality, Gary, Constance, and Keith may have uncovered the first evidence of a possible block to RSV.

"OK, OK," Constance collected herself. "We've got a lot of work to do to verify this. We'll have to go through all of these records, check every aspect of their care, blood work – everything. Then, we're going to have to interview the families. Pick apart their lives and find out what's going on. What are Indigenous Peoples doing that the rest of us aren't?"

Then she added seriously, "We can't let any of this get out yet. We've got to keep this quiet while we're verifying all this. If it gets out, we'll have a million reporters descending on this city. It'll be chaos. It could destroy the area physically and totally destroy our ability to understand what's going on. No one is to know until we complete our study and present our findings. Do we agree on this?"

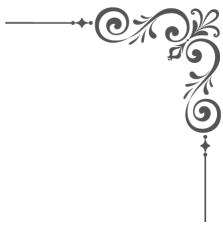
"Agreed," said Gary.

Keith nodded in assent.

Constance turned to Gary. “You have got to talk to Sara. She has to hold off on reporting any of this until we are done.”

Constance stood up. “Alright, let’s go back to the hotel and get something to eat. Afterward, we can figure out what our next steps are. Gary, call Sara. See if she’s eaten yet. If not, she can meet us at the hotel. We can talk to her there. If she’s been out talking to people, she may already be on to this.”

Gary called Sara. She had not eaten yet but was getting hungry. Gary told her they were going back to the hotel for dinner and asked her to meet them there. He said they had discovered something very interesting in the medical records. Sara was intrigued, said yes to dinner, and agreed to meet them at the hotel restaurant in about half an hour. She said she also found out something curious during her interviews as well. They could discuss it when she met them.



25

2 May 2028 Tuesday
Stanton Memorial Hospital
Yellowknife, Northwest Territories Canada

Almost every chemical introduced into or produced by the body to be either metabolized or discarded, at some point, uses the circulatory system to move it. Everything that is imbibed, eaten, or breathed in is circulated around the body. The average human has 60,000 miles of blood vessels, connecting every cell of the body to every other cell.

Almost every aspect of the life processes that sustain life can be measured through blood tests. Chemicals in the blood from the conversion of food to energy, or the building blocks for growth, or the waste products from life processes can be measured through blood tests. Blood tests can measure fats and lipids that may occlude blood vessels, chemicals that affect heart function, or hormones that influence growth or emotions.

Blood tests can also assess the state of the body's immune system. Serum and whole blood tests measure tissue damage, antibodies and regulators of immune proteins, and B and T cells, the lymphocytes that recognize invaders and destroy them.

The possibility that an anti-viral to the RSV virus existed here was tantalizing. The team of investigators had found no concrete evidence yet but the data suggested its existence. Native Americans were not getting seriously ill...and were not dying. They were not

even making clinic visits in any meaningful way.

The medical investigators did not yet know why, but felt confident that the answers would be found in the blood work. They would now have to go through all the records they had retrieved in detail. Look at all the tests. They would have to compare blood counts, electrolyte concentrations, antibody and antigen levels, PCR assays that measured fragments of viruses and other polymers, and results from cultures and immunological assays.

Constance, Keith, and Gary passed this update on to their superiors, with the caveat that more work was necessary before any conclusion could be drawn. The potential for an anti-viral seemed promising, though. Sara had also been updating her editor, but advised him that making public any details of the investigation at this point would be premature and could very well damage the investigation. She confided that there was room for cautious optimism, but it was understood that even any optimism had to remain secret for now.

With the help of Stanton Hospital's Records Specialist and an in-house computer technician, Keith and Gary created a spreadsheet with all the relevant laboratory data that maintained a link to the patient, yet enabled comparison of the data between patients. Personal data or names were left out, respecting privacy, but included a code that allowed the researchers to identify the underlying patient if necessary. Additionally, patients were identified as either Indigenous or Non-Indigenous. In the meantime, Constance met with the Hospital Administrator to see if they could get access to blood samples from non-infected, Non-Indigenous blood donors for laboratory workups. She wanted to compare them to the infected patients.

They worked until late evening and then went back to the hotel. The following morning, they were all back at eight am. It was early afternoon before Gary and Keith had gone through all three hundred nine patient admittances, extracted the data, and built the spreadsheet. Constance was able to procure some blood samples for analysis from the hospital, but had to make arrangements with a local blood center to get more. Gary and Keith had already organized the data to allow them to focus on specific laboratory test results when Constance joined them. She brought with her some coffee and pastries from the cafeteria.

"Maybe this will hold you over until dinner," she said, dropping

them on the table.

"We've gotten all this assembled and called out the data we're interested in," Keith said. "All we have to do now is go through it and see if it tells us anything. There's not a lot of detailed data, but I think we have enough."

Keith sat in front of the screen and slowly scrolled through the lab data. Constance and Gary sat close on either side, watching the numbers move upward off the screen.

"Most of these are Non-Indigenous records... all the hospitalizations are. No Indigenous admittances, so no..."

"Wait! There!" Gary said loudly. Something had caught his eye.

Keith stopped scrolling.

"There..." Gary pointed at the screen. "They must have done some bloodwork on this Indigenous patient. Not admitted, though. But look here." He pointed to an item listed as 'Unknown Polysaccharide.'

Keith scrolled down further, very slowly. "Here's another one...from a clinic. 'Unknown Polysaccharide' again." He scrolled down to the end. "That's it. Just two records from Indigenous children."

Both showed an unusual polysaccharide in the blood, which was completely absent from Non-Indigenous children.

"We need to get blood workups from more Indigenous children, adults even," Constance said, as they sat huddled together, their faces mere inches from the screen, "and compare it to Non-Indigenous children. Make sure it's not just an anomaly."

"This could be our anti-viral," Gary said quietly, as he stared at the screen.

"Too early to tell. It could be totally unrelated. But it is certainly intriguing. Very intriguing. The polysaccharide needs to be identified to pinpoint its origin. We'll see what happens when we get more blood work," Constance pushed back in her chair and stood up from the desk. "Let's call it quits for tonight. You guys have done a helluva job."

Gary sat back and rubbed his eyes. He stood up and stretched. Keith sat back in his chair, removed his eyeglasses, closed his eyes tightly, and rubbed them.

"Tomorrow we can start interviewing the families of the Native American patients on this list... get histories, lifestyle, and cultural information. See if they're eating something that results in these

polysaccharide readings. Maybe they'll agree to give us blood samples to analyze."

26

4 May 2028 Thursday
Yellowknife, Northwest Territories Canada

Sara had moved into Gary's room. It seemed easier that way. They didn't have to phone each other to talk or check to see if one or the other was ready to go. They also felt there was no need to hide their relationship, which seemed to be growing closer. They both were awake early but lay in bed until the last moment, comfortable in each other's arms, talking about nothing in particular, but enjoying the time together.

Sara was first to get up, rolling over to her side of the bed, sitting up, and pulling the sheet up around her. Gary stroked her back and let his hand fall down onto the bed. Sara turned, leaned over, and kissed him. "Got to get up. We have to meet them downstairs in fifteen minutes."

Gary groaned. "I know, but I could get used to this."

Sara got up and walked into the bathroom. "Me, too," she said, smiling.

After dressing, Sara and Gary met Constance and Keith in the lobby. For the first time on this trip, they seemed upbeat. They all believed the immunity was real, that a block to the virus was here. They just had to find it. Today they would to fly to Hay River, on the other side of Great Slave Lake, and start looking for it there.

They drove to Yellowknife Airport, parked in short-term parking, and went to the Air Tindi Terminal. Air Tindi was one of a

number of small airlines that flew short flights out of Yellowknife to local communities in the area. The four investigators boarded a Twin Otter aircraft at 7:45 am. The plane left Yellowknife at 8 am and arrived in Hay River forty-five minutes later. Prior communication with health officials in Hay River two days before enabled them to schedule interviews for later that morning with the families of prior patients.

27

From 30,000 years ago until about 13,000 years ago, a period known as the Last Glacial Maximum (LGM), the sea level between Asia and North America was 300 feet lower than it is today, creating a dry land connection between the two continents, a thousand miles wide from north to south. Great Continental and Mountain ice sheets more than a mile high covered most of the Northern Hemisphere down to the latitudes of Massachusetts, Ohio, and Washington States in North America, and Britain, Germany, Poland, and across Siberia on the Eurasian continent.

It is generally believed that, across this land bridge, and through openings in the ice sheets, came migrants from Siberia, in possibly two or three waves, the first about 15,000 to 20,000 years ago.

The second of these waves, around 5,000 years ago, was thought to be of Paleo-Inuit peoples, who mingled with the earlier migrants, establishing the first settlements near the present-day Alaska/ Canada border. They remained there for thousands of years - the so-called Beringian Standstill. Genetic evidence suggests the Dene people resulted from the joining together of those first two waves. Genetic drift and the arrival and co-mingling of other First Nations peoples in a third wave 800 years ago caused further differentiation into at least 15 unique groups across North and South America.

Today, Alaska, the Northwest Territories, and much of western Canada are home to the Dene, also known as Athapaskans, the descendants of those original nomadic peoples. The Dene established communities throughout the Mackenzie Valley of

northwest Canada, in the Great Canadian Boreal Forest, and some groups eventually spread south as far as the southwestern United States.

The Dene have always maintained an intimate connection to the land, balancing their own needs with those of the plants and animals they share the land with. They have a deep sense of community and regard for others, and a willingness to put group needs ahead of individual needs, a trait indispensable for survival in an environment that can be very hostile.

Though the onslaught of colonialism during the late 19th century into the 20th century almost destroyed the Dene people and their culture, they endured. Today, they are organized as the self-governing Dene Nation, and lay claim to the land they've occupied for tens of thousands of years. They represent all Dene in the region and demand consideration for all acts that affect their interests.

The Dene still retain their connection to the land, receiving sustenance as well as physical, spiritual, and medicinal needs. Their enormous knowledge of medicinal plants and practice of traditional holistic health care has been passed down generation to generation through oral tradition for thousands of years. Incorporation of traditional Indigenous methods of healthcare into allopathic medicine, however, has been slow, even though the holistic, or systems, approach has wide support and has proven itself a superior alternative in many respects. The United Nations, in its Declaration on the Rights of Indigenous Peoples, recognizes the bio-psycho-social-spiritual approach of traditional healthcare. There is still much the "modern" world can learn from traditional healthcare and natural medicines.

28

6 May 2028 Saturday
Hay River, Fort Providence, and Fort Simpson, Northwest Territories, Canada

The polysaccharide the team of researchers found in the blood of young Dene patients was new, never before observed in the blood of humans – or, if it had been observed, its presence was never considered significant. Its origin was unknown but almost certainly it was the result of being ingested. It was doubtful that it was the result of some genetic mutation present only in the DNA of Indigenous People. Since no stone would be left unturned, however, a possible genetic link would also be investigated.

One by one, the team visited each of the parents of children who had been RSV patients – both Indigenous and Non-Indigenous. The goal of the visits was threefold. The first two were straightforward clinical procedures. The three epidemiologists had performed them hundreds of times. Obtain blood samples for testing and obtain cheek swabs for DNA analysis.

The third task seemed straightforward at first glance – question people about their daily lives. In reality, it involved more detective work and greater insight. The team would establish a comprehensive personal and family health, medical, and social/cultural history for each patient, as well as the family. Because Indigenous Peoples depended heavily on natural foods and medicines, all substances that were either imbibed, ingested,

inhaled, or rubbed onto the body, no matter how inconsequential or how infrequent, would be included. The team would want to know where the substances came from and how they were prepared. They also knew that the Indigenous Peoples' long history of living off the land allowed them to build a comprehensive inventory of natural medicines and foods, and they would have to consider them as well. They were looking for something unusual in the lifestyles of Indigenous People.

The team started in Hay River, then drove to Fort Providence and finally to Fort Simpson, interviewing the families of every RSV patient on their list.

29

It wasn't obvious at first. Only slowly did it rise above the level of the subconscious, like a word in a wordsearch puzzle. At first it was missed entirely in the conversation. An alien, native term, that seemed more like a verb than a noun. Then, it became harder to ignore and, finally, the investigators began to recognize it. "Dleedil."

They repeated it. "Dleedil" - the Dene word for mushroom. Although the word came up in several contexts during the interviews, and it was used interchangeably with "mushroom", its use to describe a medicine, as opposed to a food, caught the attention of the investigators. The Dene were using a mushroom to help alleviate congestion and breathing difficulties in adults and infants, and had been using it as a preventative for many generations, they said.

In stark contrast, there was no reference to the use of mushrooms as a medicinal intervention in interviews with non Native families in all three communities. Dr. Gary Sanders was cautiously optimistic that this fungus was the source of the unusual polysaccharide in the blood work.

The mushroom would have to be identified and assayed for the polysaccharide. In the meantime, the team still had records and bloodwork to go through, and interviews to conduct in Yellowknife. And they would still need the bloodwork and questionnaires from Baker Lake, Whitehorse, Inuvik, and Fairbanks.

After collecting more blood samples and background

information from unrelated Indigenous townspeople in the three communities, Constance, Gary, and Keith flew back to Yellowknife. Sara stayed behind to learn more about the lives and culture of the original inhabitants of the area.

By the time the three epidemiologists arrived back in Yellowknife, blood work was beginning to trickle in from the families of RSV patients in that community. The team then contacted the families and conducted interviews with those who were willing to provide background information and cheek swabs for DNA analysis.

The results of the Yellowknife investigations mirrored those from Hay River, Fort Providence, and Fort Simpson. The polysaccharide was present in the blood of Indigenous People, whether they were patients or not. It was not present in the blood of Non-Indigenous people. Indigenous People also made use of a particular mushroom to aid in treating congestion and breathing problems in children. Non-indigenous people did not. At least, not with any regularity. It seemed less likely that genetic differences were at play. Genetic testing in related Indigenous Peoples outside the area showed no polysaccharide presence, supporting the theory that the immunity was not hereditary.

Constance made some calls to health officials in Baker Lake, Fairbanks, Inuvik, and Whitehorse to enlist their assistance, to conduct interviews, and obtain bloodwork. She decided to eliminate the cheek swabs. The initial analysis of health records, the three conducted early on, of data from those cities, showed the same pattern they saw in Yellowknife and the nearby communities - no hospitalizations or deaths of Indigenous People, and the presence of the unique polysaccharide. Because of that, Constance asked the health officials to focus their attention on home health treatments and the use of mushrooms to treat congestion and breathing issues in infants and young children.

Now, they just had to wait for the blood and paperwork to come in.

30

23 May 2028 Tuesday
Yellowknife, Northwest Territories Canada

The last of the blood work had arrived at Stanton Territorial Hospital six days before, from Inuvik, Fairbanks, Whitehorse, and Baker Lake.

By now, the group of investigators were two weeks beyond their original planned stay of one week. The confirmation that a natural anti-viral really existed was exciting, and they were given a green light to continue the research.

Constance, Gary, and Keith, along with technicians from the hospital lab, lost no time in preparing the blood and started running tests. When completed, all the reports were reviewed, and the data were added to the spreadsheet of the earlier reports from Yellowknife, Hay River, Fort Simpson, and Fort Providence. The data was then filtered to show only results for antibodies, basic immune system components such as T and B cells, and, of course, the unique polysaccharide. By this time, Constance had received back confirmation that the polysaccharide was fungal in origin. That provided further weight to the hypothesis that the unique polysaccharide was the anti-viral, and that it came from the mushroom the Dene used medicinally for respiratory ailments in children, as well as a common element of their diet.

The lab printed the report out and presented it in two different formats: by community or city, and by Indigenous vs Non-

Indigenous. The questionnaires were grouped similarly – by community and by Indigenous vs Non-Indigenous.

Keith laid the papers out on the table in two piles. The first piece of data Constance wanted to look at was polysaccharide presence. Keith picked one of the piles and spread it out in a line across the table. All three looked down the column marked "Polysac" on each of the pages, in silence.

"It couldn't be more clear," Gary said, after a few moments. "The polysaccharide is there, in all the Indigenous blood work. It's absent in all the Non-Indigenous blood work."

"The fungal medicinal is universally used by Indigenous people," Constance concluded. "The concentration varies but... it's always there." She ran her finger down the column, stopping at each row (indicating an individual patient) to confirm its presence.

"But the concentration range is narrow. They must be consuming it on a regular basis - not just when there are symptoms," Gary said.

"Hard to say. We're testing during a very narrow window of time. Maybe they consume it regularly but only during a certain time of the year," Constance replied. "Alright...Keith, lay out the pages for immune system components. Let's see how they match up with the polysac."

Keith, sitting at the table, straightened out the polysaccharide data sheets in a long column, Indigenous first and Non-Indigenous last. Beside them, he laid out the reports containing numbers for antibodies, T cells, and B cells, matched person for person across the rows. Constance and Gary, on either side of Keith, leaned over the table and looked at the data. Again, in silence, they absorbed the numbers...and their meaning.

Antibodies were universally present in Indigenous blood, and were present, but in smaller numbers, in Non-Indigenous blood, indicating exposure to a virus in both groups. There was no real surprise there.

When they looked at the other numbers, however, they at once felt they were looking at something significant.

"Look at the T and B cell numbers!" Gary said in astonishment. T cells and B cells are the killers and janitors of the adaptive immune system. They target pathogens in infected cells, killing and disposing of them. In addition, Memory B cells remember each specific pathogen so that the body can respond more quickly to a

new attack by the same pathogen. Keith was looking at blood from uninfected Indigenous donors.

“The Killer T cells of these donors are 60 times as high as the Killer cells in uninfected Non-Indigenous donors. The only way they could be that high…

“Is to be exposed to a vaccine! But we don’t have a vaccine. So, they must have been exposed to…”

“A natural anti-viral agent.” Keith finished Gary’s conclusion.

They looked at each other. “The polysaccharide,” they said together.

“And the diversity of Killer cells is a lot lower than in the Non-Indigenous donors. That means…

“The T cells are more specific – as if they were meant for a specific virus - the RSV virus.” Constance finished the sentence this time.

“You realize this is incredibly good news.” Keith was elated.

“Let’s go through this again. Go through all the data we have… again. I want to be sure there’s no other reason for the high concentration of very specific T cells before I pass this on. There has to be a clear relationship.

They had found the anti-viral!

31

26 May 2028 Friday
NBC News Headquarters
New York City, New York, United States

In an NBC studio at Rockefeller Plaza in New York City, news anchor Margaret Linden welcomed her television audience to the Evening News. Grim faced, she presented the day's top news stories. First was, of course, the Pandemic. It had, tragically, entered a new phase. Because of the new variant, RSV A2.2, the mortality rate was now 95%. Worldwide, there were 141,765,000 cases of RSV, and more than 62,115 children were dying each and every day!

Although Margaret was usually stoic and rather straightforward in her presentation, today she was visibly shaken as she described the heartbreaking stories of parents losing their children. Researchers around the world were working hard on a vaccine, but so far, with little success.

Next on the list of depressing stories for the day were the more than 1000 out-of-control forest fires burning in Alberta and British Columbia. Because of their remote location, firefighters were unable to reach the blazes with firefighting equipment. They were forced to wait for the fires to burn themselves out. The smoke from the fires was spreading south across the U.S. border, into Seattle and Spokane, Washington, and down as far as Bozeman, Montana. Air quality alerts had been issued by the National Weather Service for more than a million people across Washington, Idaho, Montana,

and Oregon. An increasingly deteriorating climate was contributing to the worst fire season in Canada's history.

Margaret spent another twenty minutes on other news: torrential rains in Tennessee and Kentucky, Ukrainian military strikes deep inside Russia (that war was still going on), heat waves in India and Pakistan, civil war and mass starvation in Syria, and the upcoming U.S. primary season.

She devoted the final few minutes to a developing story out of the Northwest Territories in Canada.

"Finally, tonight," Margaret said, "we have some promising news out of Yellowknife, Northwest Territories, Canada. Researchers may have uncovered a potential immunity to RSV in Indigenous Peoples living in the Boreal Forest of the far north of that country. I spoke to our Science Reporter, Sara Campbell, earlier today via Skype."

A new screen appeared, replacing the live feed with a previously recorded video exchange between Margaret and Sara Campbell. In the video, a split screen showed Margaret speaking to Sara.

"Good morning, Sara. You've been in Yellowknife with a team of epidemiologists since the beginning of May. What can you tell us about the rumored immunity to RSV found there?"

Sara leaned in toward the screen. "Yes, good morning, Margaret. I arrived here three weeks ago with three investigative epidemiologists - one from the World Health Organization, one from the CDC in Australia, and a third from the Public Health Agency of Canada. They were tasked through a collaborative effort by their governments with investigating rumors that there existed children in the Northwest Territories who were immune to RSV. When they arrived here in Yellowknife, the researchers started looking at all the RSV cases for seven communities in the region: Yellowknife, Hay River, Fort Providence, Fort Simpson, Baker Lake, Whitehorse, and Fairbanks, Alaska. They looked at both Indigenous and Non-Indigenous residents to see if there was a difference in how each responded to the RSV virus. They looked at blood work, medications, how they were treated, and the outcome.

Sara continued. "They interviewed the families of the patients to get additional cultural information, family and medical histories. Again, looking for differences. They also got more blood and DNA samples from family members and other volunteers, even residents who never contracted RSV. They were attempting to get as large a

representation of the population as possible. Then, the epidemiologists went through all the blood work.

"What they found was quite extraordinary, Margaret." Sara paused for a moment. "No Indigenous patients from all those communities – Fairbanks included, and that's a large city with more than 32,000 people – no Indigenous patients from all those communities died from the disease, while 95% of Non-Indigenous patients who were hospitalized did."

Sara continued. "Another important finding had to do with T cells. T cells are specialized white blood cells that are part of the adaptive immune system. The body naturally produces an enormous number of different kinds of T cells, and each one recognizes and kills a different virus. When a virus enters the bloodstream and is recognized, millions of copies of the matching T cell are made to fight the virus.

"Now, making all those copies takes time, and the body can be overwhelmed by the virus before enough T cells are made. It's better to have millions of T cells already made and lying in wait, ready to go just in case. That's what a vaccine does. It tricks the body into thinking there's a virus present, causing the body's immune system to build a T cell army against that specific virus. When the real virus attacks, the body has an army ready to fight back. Currently, as you know, we have no vaccine to do that for RSV.

"What the researchers discovered next may change all that. They found that uninfected Indigenous people had a large number of RSV-specific T cells already in their blood, 16 times the amount found in uninfected Non-Indigenous people, which suggested that some anti-viral agent had been present in their blood. When they looked further, the research team found a unique carbohydrate, called a polysaccharide, in the blood of Indigenous people that is absent in Non-Indigenous people. They think the polysaccharide came from a mushroom that grows in the forests throughout the area. Indigenous people here have been using this mushroom for hundreds of years as a medicine. The mushroom has not been identified as yet, and work is ongoing to find out more about it.

"All this is preliminary... and a lot more work has to be done, but what they've found so far is exciting, and it gives us some hope that a natural vaccine might exist."

"Sara, this is, as you said, exciting news, and let's hope it does

lead to a vaccine soon. I know you'll be following this story closely and you'll be updating us regularly. Thank you, Sara."

"Thank you, Margaret."

The Skype video closed, and the live feed returned. Margaret looked at the camera. "That's the news for today. Thank you for watching. We'll see you right back here tomorrow."

32

13 August 2028 Sunday
Fort Simpson, Northwest Territories Canada

Dene Elder Russel Penkay and Ecologist Dr. Emma Harris walked through a heavily forested area west of Highway 1, just outside Fort Simpson, Northwestern Territories, Canada. They were looking for a mushroom.

The weather was beautiful, cool, with temperatures in the low 70's, and just a hint of fall color, the bright yellows of birch and aspen, and deep yellows of goldenrod. A few remaining fireweed, left over from the summer, dotted the path, their magenta flowers nearly finished.

Elder Penkay was one of the most respected and influential leaders and former Chief of the Dettah community. He was 71 years young, tall, over six feet, physically fit, his face weathered, and his hair long, nearly all white, and tied into a ponytail. He grew up in the area, near the Mackenzie River. Before settling down on the shore of the Great Slave Lake, in the community of Ndilo, his ancestors led a nomadic life of hunting, fishing, and trapping.

Like many people of his generation, he lost his childhood to a state-run residential school system meant to erase his language and culture, and "civilize" him. Russel, however, did not forget his native culture and language, nor his ancestry. Neither did he lose his love and respect for the Earth - for the plants and animals and all the life the Dene shared the Earth with. He grew to be a strong

advocate for his People, for the land they live on, and for their rights and responsibilities as the original inhabitants and caretakers.

Dr. Emma Harris, 57, Professor of Forest Ecology from the University of British Columbia, Canada, was a mycologist, specializing in the taxonomy and ecology of Boreal Forest mycorrhizae. Though slight in stature, only five feet in height, and barely 100 pounds, she made up for her diminutive size with an outsize mind. She had single-handedly discovered one hundred thirty new species of fungus during her career.

Emma Harris had been in love with forests and forest fungi since she was sixteen. Born in Calgary, she hiked the forests of Banff National Park on weekends with her father, a high school biology teacher, and her mother, a forest ranger. She earned her PhD in Evolutionary Biology at Carleton University in Ontario, before moving on to a teaching position at the University of British Columbia. There, inspired by the work of researcher and giant in the field of plant communication and mycorrhizal networks, Suzanne Simard, Emma devoted herself to studying the symbiogenesis of plant-fungus systems. Her work on the Common Symbiosis Signaling Pathway earned her the CSMB Arthur Wynne Gold Medal in 2026.

Both Dr. Harris and Elder Penkay had been contacted by the Public Health Agency of Canada in mid May and briefed on the mushroom's importance. Health officials had been aware of its existence since early May but did not know its identity. They had seen canned and preserved specimens only in the homes of the Indigenous Peoples who used them for food and medicinal purposes. Live mushrooms, the above-ground fruiting bodies of the fungus they sought, would not appear in the wild until August.

Health Officials asked Dr. Harris if she would go to the area in August, team up with Elder Penkay, identify the mushroom, get specimens, and isolate the polysaccharide. Elder Penkay, the Officials told Dr. Harris, had first-hand knowledge of the land, of the mushroom they sought, and was a representative of the Dene Nation (on whose land the mushroom was found). He was willing to guide Dr. Harris to the areas where it was growing and confirm that it was indeed the right one. Russel, by this time, was also aware of the mushroom's importance and wanted to help, but was insistent that the Dene be an integral part of any discussions that affected their land. He was assured that the Canadian government was

agreeable to his request.

In another month, fall colors would be almost at their peak. As Russel and Emma made their way deeper into the forest, the air became noticeably cooler and more damp. It had a primeval feel and smell. They walked slowly, stopping here and there along the way to examine and discuss interesting flora and fauna. Overhead, and all about them, stood tall spires of spruce and fir, giving off their clean, distinctive smell. Scattered throughout were paper birch trees, some singly, others in small groups, their bark gleaming white where shafts of sunlight broke through the canopy.

The ground under their feet alternated between dry land and low, shallow, and very wet depressions, filled with sedges and horsetails. Lush, deep green mosses covered the trunks of trees and hung from branches, swaying back and forth in the gentle breeze. The forest was a mosaic of microhabitats. At places, it would open up into sun-filled dry meadows with highbush cranberries and blueberries. In other areas, the ground would be boggy and spongy, with more horsetails, mosses, and carnivorous plants.

Russel stopped for a moment, looked up and around at the trees, and breathed in deeply through his nose, then exhaled through his mouth. “You know, most people would feel uncomfortable here. But this is home to me. I was born near here, near the Deh Cho, what you call the Mackenzie River. Here, we feel connected to the land, to the wildlife. The Dene believe we are part of the land. We have no dominion. We are not in charge.”

“It’s a good thing that the Dene here in Canada, and Indigenous peoples all over the world, after being treated so shamefully for so long, are finally gaining the recognition they deserve,” Dr. Harris said. “There is so much we can learn from Indigenous Peoples, if only we could give up our sense of superiority... and commitment to never-ending growth.” Dr. Harris was doubtful the human race could change, as capitalism seemed too deeply entrenched in the global order. It would take a paradigm shift in thinking.

“It’s true, the Dene have been treated badly,” Russel said. “Many children were taken from their parents and sent to residential schools for nearly two centuries. They were stripped of their identities and their culture. They lost their childhood, their connection to the land. For thousands of years, we have lived in peace with the Earth. We always had a plan, and we never took more from the land than it could provide. We always gave thanks to

the land each time we took something. That is no longer happening. The climate is changing, and the white man is killing the Earth."

Russel looked down off the path they were on as they came to a clearing. He got down onto both knees and sat back on his heels. He then leaned forward and cleared away some leaves. There, in front of him, was a mushroom. The cap was pale brown, about three inches in diameter. Dr. Harris took off her backpack, laid it on the ground, and got down on her knees to look. "Is that it?"

"This is it," Russel said as he cut it loose from the ground with his pocket knife and handed it to Emma. She looked at it closely, turning it this way and that, examining it from every angle. The stalk was whitish with small dark scurfy vertical markings all the way around. She took her magnifying loop out and looked for details that would confirm its identity.

She turned it over and looked at the bottom side of the cap. "Hmm… no gills. White Birch Bolete – Leccinum holopus. Some small differences, though. I'll have to look more closely in the lab – or possibly do DNA sequencing to be sure. But it definitely is Leccinum." She looked around the clearing and noted the paper birches nearby. Then she dug cautiously in the surrounding soil. Pulling the leaves and soil away gently, she recognized the mycorrhizal network.

Russel scanned the ground. "There are more beginning to poke through the leaves. I'll gather a few more. Do you have some bags?"

Emma pulled some plastic specimen bags out of her backpack and handed them to Russel. She then photographed the area – the ground, the mushrooms, the trees. She also noted the GPS coordinates in a notebook, along with a detailed written description of the area. "Can we look at other areas, Russel? I'd like to see as many as I can and get a sample or two from each area.

Russel nodded. "Sure, Dr. Harris. There are many areas like this – as far as Inuvik, and even into Alaska."

"Russel, please call me Emma. You needn't be so formal."

"Alright, Emma. Let's see what else we can find."

Over the course of the next week and a half, Russel guided Emma to numerous sites throughout the region that the Dene used to gather White Birch Boletes. They drove 3 hours north of Fort Simpson to the small indigenous community of Wrigley, on the Mackenzie River, to collect specimens in three or four sites, then back down through Fort Simpson and east to Fort Resolution,

another Dene community. There, they gathered more specimens. Russel was impressed with Emma's stamina and enthusiasm. He also found her to be a good listener and genuinely interested in his personal history, the history of the Dene, and she shared with him a belief that all life merited equal consideration.

The longer trips to Inuvik, Whitehorse, and Fairbanks required flying. The Canadian government paid for the flights, car rentals, hotels, and food, and anything else Emma and Russel needed to get specimens of White Birch Boletes from traditional Dene harvesting areas.

33

28 August 2028 Monday
University of British Columbia
Vancouver, British Columbia, Canada

Back at her lab at the UBC, Dr. Harris got to work making a positive ID on the mushroom, enlisting the help of her two Ph.D candidates, Rosylyn Gauthier and Josh Linn.

Rosylyn had received her Bachelor's degree in biology from the University of Saskatchewan and afterward transferred to UBC to work under Dr. Harris to earn her Master's and PhD. Josh started out working toward a doctorate in medicine, in immunology and virology. He was a relative newcomer to the science of mycology, but knew that fungi, especially endophytic and marine fungi, would be where the new antivirals of the future would be discovered - and he wanted to be part of it. Both Rosylyn and Josh knew of Dr. Harris's reputation in the field, that she could be demanding as an adviser, but they also knew her research on Boreal mycorrhizae was top-notch, and they could learn a lot from her.

Dr. Emma Harris was reasonably certain the fungal specimens she brought back were all White Birch Bolete - Leccinum holopus - but she couldn't be 100% sure they were all the type species, since she had collected them from many different locations. And there was the question of the unique polysaccharide. It had never been found in the type species before. So, was this a new species? Was the unique polysaccharide present in all the specimens? All the

specimens would have to be analyzed separately, positively identified, and compared with one another to see if they were all, indeed, the same species. The presence of the unique polysaccharide might mean a new subspecies had been found. For that reason, she would have to proceed carefully and methodically with the identification process.

Dr. Harris went over what they knew so far with her two PhD students. The mushroom specimens came from a number of areas, all within the Great Canadian Boreal Forest, around 60 degrees north latitude. The habitats differed very little. All were wet to moist, acidic, and boggy forested areas. The mushrooms were always in close association with White Paper Birch, Betula papyrifera. Fruiting first appeared in early August.

Dr. Harris then considered gross and macro-morphological characteristics. She assigned each student half of the specimens. They measured cap size, texture, shape, baldness, and color; pore surface (gills or not) color, pore size and distribution; stem length, diameter, color, texture, tapering, and markings. Each student then carried out chemical and staining reactions on the cap surfaces using ammonia, potassium hydroxide, and iron sulfate, and then each did a spore print. Micro-morphological characteristics were considered next: spore size, shape, color, and staining reactions. Finer micro-morphological structures of the fungal cap were considered last.

When all the morphological and chemical test data were in, the results showed all specimens fell within the characteristic parameters of the Leccinum holopus type.

However, morphological characteristics would only get you so far. Getting down to species or subspecies level required molecular identification techniques, like mass spectrometry, gene sequencing, DNA barcoding, and DNA taxonomy. DNA Barcoding, the method Dr. Harris chose to use for conclusive identification, had been in use for more than two decades. The technique focuses on the mutation rates of the genes in three contiguous regions on the nuclear ribosomal gene, allowing for identification down to the species level.

Although the science may be complex, thanks to modern-day technology, the technique is fairly straightforward and uncomplicated. DNA is extracted from a sample of tissue. The barcode section of DNA being investigated is targeted and

replicated millions of times using special primers during a process called polymerase chain reaction (or PCR, for short). The barcode section of DNA is then characterized by a sequencer and then matched to a reference library of known fungi.

Rosylyn and Josh worked together, under the close supervision of Dr. Harris, on the DNA barcoding of all the samples. Much of the barcoding process was automated, involving a lot of waiting time, and that extra time enabled the researchers to complete two final tasks: isolating and characterizing the unique polysaccharide, and culturing the fungus for further studies.

Polysaccharides are probably the most abundant macromolecules in nature, and are found in just about every living organism. They are large carbohydrate molecules composed of tens of hundreds to tens of thousands of simple monomers – sugars, like glucose – joined together. Polysaccharides can be long single-chain structures or highly complex and twisted three-dimensional forms. They form integral parts of the cell walls of plants, fungi, algae, and even bacteria. Each species in these groups contains a unique set of polysaccharides and thus can be identified based on this. Beta-glucans, a specific subset of polysaccharides unique to fungi, were the focus of Dr. Harris' current investigation.

The unique polysaccharide in question would be extracted, purified, and freeze-dried to a powder through a process called hot water extraction. The powder would then undergo further treatments to prepare it for UV Visible Spectrophotometry, producing a light absorption spectra – a fingerprint of sorts. That fingerprint would be compared to known polysaccharide fingerprints for a positive ID.

What Dr. Harris found from the UV-VIS Spectrophotometry spectra didn't fully surprise her. There was no match with any known patterns in the library, indicating this was, indeed, a new polysaccharide, and thus, she was dealing with a new species or subspecies of fungus. She suspected as much from the subtle morphological differences she noticed between the type species and the specimens she collected. The barcode data had come in at the same time and supported the data from the spectrophotometry. This was a new fungus and a unique polysaccharide.

But, were all the mushrooms in the area the new subspecies? Had the new subspecies replaced the old in the region? The answers to these questions were no, and no. While the overwhelming

majority of the specimens were the new subspecies - around 95% - not all were, so the new subspecies had not yet replaced the type species, but it was in the process of doing so. Clearly, there was an evolutionary advantage to having the unique polysaccharide. That would be the subject for new research in the future.

Dr. Harris decided to culture the mushroom. Culturing the White Birch Bolete would serve two purposes. First, it would establish that the polysaccharide could be reliably reproduced with each generation. In the short term, that would make production of the unique polysaccharide easy, since the mushrooms could be mass grown, and the whole process could be mechanized and controlled. Second, it would provide additional material for further studies.

The whole growing process, from initial tissue culture to new mushroom formation, took 23 days. Multiple samples of tissue were removed from the center of the mushroom cap using sterile forceps. A small sample was placed on each of 3 plates containing potato dextrose agar. The plates were covered and stored at room temperature. Within a few days, mycelia were observed spreading from the inoculant. The researchers allowed the mycelia to spread for another 3 days and then subcultured the inoculum into new agar dishes. The original “mother” culture was stored at 4 degrees Celsius for future studies. After another two weeks, fruiting bodies began to form. When they were fully grown, some were harvested for barcoding and polysaccharide assay.

34

25 September 2028 Monday
University of British Columbia
Vancouver, British Columbia, Canada

Rosylyn Gauthier walked into Dr. Harris' office, with the latest data from the culture studies. Dr. Harris was on the phone with an official from the Public Health Agency of Canada, providing an update. She looked up and over to the door when she heard Rosylyn enter.

Dr. Harris excused herself. "I think we've just received the latest data on the cultured fungi from the specimens we collected in the wild. I'll give you a call back after I've gone over it."

Dr. Harris hung up and set her phone down on her desk, and looked toward Rosylyn. "You have the results?"

"Yes," Rosylyn said, not at all happy.

"What's wrong?"

"The barcoding came back fine. Same ID..."

"Then, what's wrong?"

"The polysaccharide doesn't show up in the spectral analysis." Rosylyn handed the papers to Dr. Harris. Dr. Harris looked through them.

"What...where is it?" Dr. Harris was blown away by the unexpected results. "Did you miss..."

"No, Dr. Harris. We didn't miss it." Rosylyn was adamant. "We ran the tests twice. We checked over every step. It's missing from

the new cultures. The cultured mushrooms did not produce the polysaccharide."

"Did you run the tests over with the original samples again, to check the equipment and chemicals?"

"Yes, ma'am. Ran the tests again with the original samples. The results are there." Rosylyn went over to Dr. Harris and fingered through the papers Dr. Harris was holding, locating the test results of a new run on the original samples and pulling it out for her to see. Dr. Harris looked at the data. She looked back at the data for the new cultures. Back and forth, back and forth, looking for a reason why they would show up in one set of tests and not the other. There seemed to be no explanation. The screenings seemed to be done correctly and were consistent between all samples.

Although Dr. Harris had no reason to question the screening results or the procedures followed by her two graduate students (the procedures were straightforward and her two students were highly competent), she felt obligated to carry out the screenings again herself to confirm the results. She even sent samples to other colleagues for culture and screening. All produced the same result, with the same conclusion: *new mushrooms, cultured from wild collected mushrooms, did not produce the unique polysaccharide.*

It was a huge disappointment, to say the least.

Something in the mushroom's environment seemed to be critical to the production of the unique polysaccharide. It could be a physical or chemical component of the environment, or it could be biological - one or more other organisms. Regardless of which, the component in question would have to be universally present in every location where the new subspecies was growing.

Dr. Harris suspected it might be some sort of symbiotic relationship, not just a chemical or physical attribute of the environment. She knew the White Birch Bolete was always found in association with White Birch and Black Spruce, in a complex mycorrhizal network. So it was not much of a stretch to think one or both of those trees influenced the production of the unique polysaccharide. If so, it seemed to be an emergent property, that is, a property that is present in the aggregate system that is not present in the individual parts. All the participants in the mycorrhizal network each have their own individual properties, but when they are combined into a system, a new property appears because of the collaboration.

In this case, it seemed, the White Birch Bolete alone could not produce the unique polysaccharide, but, with one or more associates helping, it could.

If that were the case, production might be limited to harvesting natural mushrooms. That would be a serious obstacle to mass production and the quick dissemination of billions of doses of a much-needed anti-viral to a desperate world. It was imperative that research be continued to better understand the apparently complex ecological relationship the fungus had with its environment in the hopes of revealing its secret to anti-viral production.

Meanwhile, the researchers would extract as much of the unique polysaccharide as they could from available supplies (fruiting season was waning and mushrooms wouldn't be available much longer), to carry out clinical trials, to officially evaluate and document the unique polysaccharide's effectiveness against RSV. Laboratories everywhere would also start work on artificially synthesizing a vaccine based on the anti-viral.

All new vaccines undergo a structured testing process before being accepted for use as a treatment in the general population. Each country follows its own version of this process, but in general, vaccine development proceeds through four phases or clinical trials that establish the effectiveness and safety of a drug.

Pre-clinical Trials are carried out on non-human subjects or model organisms that serve as proxies for human systems, to establish their acceptance for use on humans. Phases I through III are then carried out on human subjects in increasing numbers and under increasingly greater oversight, supervision, and scrutiny to establish effectiveness, safety, and dosage optimums. The clinical trial process usually takes years to go through before a drug gains approval for general use.

The process can always be truncated, though, and general use accepted earlier, based on a variety of factors, such as its prior approval for use on other diseases, or in case of emergencies, as occurred during Covid19 vaccine development (Emergency Use Authorization).

In the current situation with RSV, both of these situations figured prominently. First, this was certainly a dire emergency. Second, the unique polysaccharide had already been in use for tens

to hundreds of years already (although without official approval by the FDA), as an anti-viral respiratory distress intervention. Data, so far, overwhelmingly supported its effectiveness – and safety - as an anti-viral for RSV. While it's true that its use up to this time had been limited to a small segment of the population (Indigenous Peoples), it could be reasonably argued that only limited additional testing would be necessary to establish its effectiveness in the general population. The anti-viral could be brought to general use in a relatively short amount of time.

35

27 September 2028 Wednesday
Canberra, Australia

Gary awoke to the smell of bacon. For a moment he was confused. Why was he smelling bacon? Then it came to him in a rush. Sara! Sara was cooking. He was waking up in Sara's bed, in Sara's house. They had moved in together.

Gary had moved in shortly after returning from Canada. That trip seemed to be the trigger. The two had talked about it before, but the trip had convinced them to make the move. It was getting harder to spend time together, what with Sara's foreign assignments and Gary's late nights at the lab. She did have a bigger place, she said. His apartment downtown was small and cramped. Life was getting more stressful, with the Pandemic raging and children dying, the climate crisis deepening, geopolitical tensions, partisan politics, the rise of populist authoritarians, hatred and anger, the wars in Ukraine, the Middle East, Africa... genocide. The list went on and on. The world seemed to be unraveling. It made Sara and Gary appreciate the time they spent together more than ever, and they wanted more of it. They felt like time was running out.

Gary stretched and sat up on the edge of the bed. "That smells delicious!" He shouted to Sara.

"' Bout time you got up." She shouted back. "Get out here, we've got to leave soon if you want to be on the river before ten."

Gary grabbed his shorts from off the floor, slipped them on over

his briefs, and looked for a polo shirt in the closet. He could never just pull a Life Is Good shirt off a hanger and throw it on, he had to look at the message printed on the front first, to see if it was the right one for the day. Who was going to see it? Did he want to say something special? He picked through them, sliding them past as he read the messaging on the shirt. “Family Ties”, “Be The Person Your Dog Thinks You Are”, “The Best Things In Life Aren’t Things.” He settled on “Simplify.” Seemed appropriate for the day. He slipped it off the hanger and looked at it again. “Yup, that’s the one for today.” He put the shirt on and walked out into the kitchen.

Sara was already dressed in ripped jean shorts and a polo shirt of her own. Her long, dirty blond hair was up in a ponytail. She was facing the stove, finishing some scrambled eggs. Gary came up behind her, wrapped his arms around her, and held her for a moment, then leaned over and kissed her on the side of her neck. “Good morning.”

“Good morning. You’re going to make me drop these eggs.” She shrugged up her shoulders and giggled as the goose bumps broke out all over. Gary released her, and she turned toward him, stretched her neck upward, and kissed him on the lips. “Now sit. I want to get on the water. We only have today. I’ve got to catch a plane tomorrow.”

“Yes, ma’am.” Gary moved away toward the kitchen table, put his leg over the back of the chair, and sat down. Sara slid half the eggs onto his plate and the other half onto hers. She put the pan back on the stove, grabbed a plate with the bacon and two pieces of toast, and sat down at the table across from him.

“Juice?” Gary asked as he filled Sara’s glass with orange juice.

They finished the eggs and bacon, cleaned up, and loaded Gary’s Ford F150 with the kayaks, cooler, lunches, and drinks. They were anxious to make the most of the day. They planned to do some kayaking on the Murrumbidgee River and have a picnic lunch near the Uriarra Crossing, a popular birding, fishing, and boating area within the Uriarra Recreation Area, about ten miles west of Canberra.

Uriarra Crossing had a rugged feeling to it. Rolling hills and jagged cut-offs rose up and away on either side of the river as it sliced its way in zig-zag fashion through the landscape. Rocks and boulders mixed with dense stands of trees and open meadows dotted the river banks. Areas of fast-moving water and rapids made

for great kayaking, while calmer stretches were perfect for swimming and tubing. Downstream areas were perfect for fishing, while trails and cycling paths explored all the natural contours and elevations of the Reserve.

Sara and Gary spent most of the day kayaking the river, living in the moment, and, for a few hours, forgot about the chaos that seemed to be swallowing them up. There were still places to go where they could feel at peace. In late afternoon, they pulled their kayaks up on shore, spread a blanket out, weighed it down with their cooler, and relaxed on the bank of the river, watching the remaining few families enjoying the water. Sara opened the cooler, looked around inside, and pulled out a sandwich and a drink for each of them.

“I wish you didn’t have to leave again tomorrow, Sara,” Gary said as he stared out toward the river, holding the sandwich she just handed him. “It’s a long trip.”

“It is,” Sara agreed, unwrapping her sandwich, balling up the plastic wrap, and setting it aside. “I’m not looking forward to that flight again. But Canada’s is where the answers are, and it's 14,000 kilometers away... and I have to report on it. You know that. Right now, it’s our only hope for an anti-viral. Dr. Harris says we can’t grow the mushroom in a greenhouse. It won’t produce the antiviral, and so far we can’t build a vaccine.”

“I know. Everybody’s working on it,” Gary said, taking a bite of his sandwich. “But that polysac is one of the most complex molecules we’ve ever seen. It’s not going to be easy, and my guess is, it’ll be years before we even understand it fully, and how it works, much less build a vaccine.”

“That’s why we have to focus attention on that forest, keep it safe, protect it. It’s so important right now,” Sara said. “It holds all the secrets.”

“And the world wants to know those secrets, how it does it,” Gary added.

“The answers could prevent millions of deaths every day, but the area has to be protected, Gary, and that worries me. There’s immense pressure to open up the whole area to research, and that could lead to incredible destruction. We could lose everything. Climate change is killing all the Boreal forests around the world. It's shrinking their range, helping to spread beetles... and forest fires are decimating them. The Dene control the area now, and they’ve

been good stewards for thousands of years, and they seem willing to help – to allow research teams in, but at the same time they want assurances that destruction won't follow."

"You can't blame them," Gary said. "They're afraid that the Canadian government will renege on their contract with the Dene and move in and take over. I wouldn't trust the Canadian Government either. Any government, for that matter. Governments are not a bad idea, in theory, but they all end up benefiting the top. They all do it. Canada's done it before. Canada could also steal it for themselves, and we might wind up in a war."

You don't think Canada would do that, do you?"

"People are desperate for a cure, Sara. Anything's possible. The whole program could be taken over by the rich elites, and we all could wind up with nothing. You know how they control the political process, and if there's a way to make money, they'll find it. They're not worried about us." Gary put the last of his sandwich in his mouth, chewed and swallowed it, and washed it down with his drink.

"I used to think you were just paranoid about the rich, but I'm beginning to agree with you. I see it more and more every day. Why, why must it always be this way? I just don't understand, Gary."

It was a rhetorical question, of course. Sara knew the answer. The rich are much more greedy, more aggressive, more unscrupulous, more willing to exploit others, treat them unfairly, and more willing and able to tailor laws that benefit themselves.

"The system is rigged to convince people they need more," Gary said. "Always more. It's what keeps the system going. If we suddenly realized we didn't need more, the whole system would collapse. And it's usually not the average person. It's the greedy bastards at the top who are to blame The rich. Greed rules the world. Always has, and I think it always will. They control all the resources and push Indigenous Peoples to the fringes, to land that's of no use to them. Then, someone discovers some valuable mineral on the land or, in this case, a life-saving drug, and they find an excuse to steal the land back and push the Native Peoples onto even more useless land. In the end, a few rich people become richer and usually poison the land in the process, making it unusable for everyone. It just pisses you off." Gary was frustrated.

"Maybe if we can keep the public's attention on it, keep it in the

headlines, all the parties will be more inclined to behave themselves." Sara fell silent for a moment, then, frustrated, said, "We have to stop mistrusting each other... start cooperating, helping each other."

"Sara, you're such an idealist, and... God, how I love you for it. But that's never going to happen. At least not from the top. It has to come from the bottom up. And it has to be a real democracy. As long as the rich can take advantage of this, they will... and to hell with everyone else. The only way we can have the world you want, Sara, is for the people to rise up and make it happen."

Gary realized he was getting too worked up and changed the subject. "How long do you think you'll be away?"

"Not sure. Maybe two weeks. Dr. Harris is convinced that the antiviral is the product of some special relationship between the fungus and the plants in that area. Somehow they've come to cooperate in some grand alliance that benefits all."

Sara had been closely following events in Canada and had spoken to Dr. Harris a number of times concerning her research on the White Birch Bolete. She knew Dr. Harris had positively identified the mushroom and isolated the unique polysaccharide, and knew that it was the anti-viral responsible for immunity to RSV in Indigenous People in the area. She also knew Dr. Harris and other specialists had failed to replicate the polysaccharide in sterile cultures of the fungus.

"We humans could learn a lot about life, and about co-existence, from simple organisms and their symbiotic relationships. We keep talking about competition and survival of the fittest, but, in truth, it's alliances and symbiotic relationships that drive a lot of evolution, produce incredible diversity, and make for a balanced natural world."

"Maybe it's because we haven't been around long enough to learn that cooperation is the key to long-term survival," Sara mused, as she watched the sun settling toward the horizon. "Maybe all life started out competing against each other, and found out that wasn't going to work - that it wasn't the best strategy. Life learned cooperation was the key. Working together expends less energy. We haven't evolved far enough to learn that."

"But, we have evolved far enough to know how to annihilate ourselves and make the planet unsuitable for life," Gary said. "Let's hope we don't do that before we learn how to get along."

The sun was slowly sinking behind the hills off to the west, creating long shadows that reached down to the river. Sara and Gary gathered up their blanket and cooler and put them on the back seat of the truck. They hoisted the kayaks onto the bed of the truck and tied them down. They then made their way back to Weston.

36

Forest soils are marvelously complex, multi-layered, and biologically very active. The topmost layer, the O Horizon, is mostly leaf litter. Saprophytic fungi in this layer decompose dead organic matter - leaves, branches, animal remains - breaking down the complex macromolecules of life into simpler organic and inorganic molecules. Those simpler molecules move downward, forming a second layer - the humusy, mineral-rich A Layer. It is in this humus layer that tree roots both anchor the trees to the land and spread out to absorb the minerals and water stored there. Only in the last few decades have we become aware how complex and amazing this layer is, that there exists a vast underground fungal network connecting the roots of trees together, enabling communication, early warning systems, and the sharing of information, nutrients, minerals and water between tens of thousands of individuals and the fungi that link them. It is thought that 90% of all plant species engage in symbiotic relationships with fungi. Fungi probably acted as precursors to roots when aquatic plants began to colonize dry land.

Suzanne Simard, from the University of British Columbia, was one of the earliest proponents of this idea. Before she and a handful of ecologists started uncovering the secrets to the symbiotic relationships between trees and fungi, the prevailing understanding was that forest trees were isolated individuals competing with one another for available resources. Foresters seeking to re-plant clearcuts first killed off all other vegetation in the area to be

planted, thereby, they assumed, eliminating all competition. The foresters then established a monoculture of seedlings, consisting of only the desired tree species they wanted to grow.

Much to their disappointment and bewilderment, they found that most of the seedlings eventually died. Simard suspected that cooperation, not competition, was responsible for a strong stand of evergreen trees. She proved, through carefully controlled experiments, that birch trees, which leafed out early in the spring and started growing earlier than the Douglas firs, transferred sugars to the Douglas Firs, thus helping them get started in the spring. She also found that Douglas Firs that were shaded received a larger supply of sugars from the birches than trees growing in the sun. This transfer, she discovered, occurred through an underground network of hyphal threads, from the fungi that connected the trees. This interconnected network is called a mycorrhizal network, and the fungi that participate in it are mycorrhizae.

The fungus doesn't allow the trees to use the mycorrhizal network for free, though. In return for using its network to move water, minerals, sugars, and other nutrients about between trees, the fungus receives its share of the nutrients - a transport charge, so to speak.

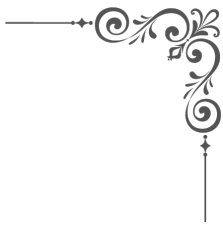
The network isn't just between one or a few trees, either. It can involve interconnections between hundreds or thousands of trees. Every tree is connected to every other tree, with the oldest, the mother trees, acting as hubs. Not only are nutrients passed back and forth, but hormones and chemical signals are exchanged. The connections seem to be even more intimate on closer examination. Older trees connecting to younger trees (which they seem to recognize), help them by transferring additional nutrients during times of environmental stress. Dying trees seem to pass on their carbon stores to their offspring in a sort of inheritance.

Mycorrhizae come in two basic forms. Endomycorrhiza are the oldest, evolutionarily, and are the most common form, but nearly all are restricted to below-ground life. Very few produce mushrooms. They are usually found in warmer climates and, although they can be found in Boreal climates, they have been largely unstudied there. They are also generalists, taking up residence in 72% of plant species. Endomycorrhizae penetrate root cells, exchanging materials directly from within the cells.

Ectomycorrhizae, the second form, most commonly associated

with trees, envelop and surround the tree roots. They do not penetrate the root cells, but surround them and transfer materials across cell walls. They are found mostly in cold climates and are specialists, colonizing about 5% of all plant species. They produce the above-ground reproductive fruiting bodies we recognize as mushrooms.

Both kinds of mycorrhizae can co-exist side by side with trees and herbaceous plants in highly complex, multifaceted relationships that are still not yet fully understood.



37

30 September 2028 Saturday
Fort Simpson, Northwest Territories Canada

After another grueling flight to Yellowknife, Sara met with Dr. Emma Harris, her two graduate students, Rosylyn Gauthier and Josh Lynn, and Elder Russel Penkay, at the Fort Simpson Health Centre in Fort Simpson, Northwest Territories, Canada, at 9 am. It was a chilly 43 degrees F, and the temperature wasn't expected to rise above 65 degrees all day. It was, after all, fall, and there wouldn't be too many more comfortable days before winter set in. Dr. Harris was hoping to get some answers before the mushrooms disappeared for the year.

Thanks to a cooperative effort between the University of British Columbia, the Canadian Government, and the Dene Nation, Dr. Harris received enough funding and equipment to set up a temporary lab in the Fort Simpson Health Centre, where she and her graduate students could do some analytical work. Several research institutions had also requested lab space and permission to study the forest sites where the mushrooms were growing, but only Dr. Harris was granted access for now, and only because Russel Penkay had recommended her. Russel felt nothing would be gained by multiple competing teams tramping around in the forest. A significant number of labs were in possession of enough fungal samples to carry on research dedicated to the synthesis of the unique polysaccharide anti-viral. It was a top priority.

The focus here was to get a better understanding of the interrelationship that existed between the trees and the mycorrhizal networks that connected them. Dr. Harris had spent the previous week inventorying the trees at all the sites where she had previously collected samples of the White Birch Bolete. The trees that were common to all the sites were the conifers, White Spruce and Black Spruce, the hardwood deciduous trees, Trembling Aspen, Paper Birch, and Balsam Poplar.

The Ford F150 pickup truck Dr. Harris had rented was already loaded with the equipment they would need for the day's work. Sara introduced herself to everyone, and they split up into two vehicles – Sara and Russel in Russel's 2004 Toyota Tacoma and Dr. Harris, Rosylyn, and Josh in the Ford.

Russel led the way out to the first research site north of Fort Simpson, a few miles west of the Mackenzie River, off Highway 1. The forest was now ablaze with color, autumn at its most spectacular, the radiant yellows of Aspen, glowing yellows and oranges of Paper Birch, and deep oranges and amber of Larch and Balsam Poplar competing for attention with the brilliant reds, yellows, and maroons of Dwarf Birch, Bearberry, Willows, Mosses, and Lichens.

They parked in a small clearing off a narrow dirt forest road and unloaded the equipment. While the graduate students set up the equipment, Dr. Harris explained to Sara and Russel what she planned to do.

Dr. Harris would use the photosynthetic process to track carbon through the network, thereby identifying the trees that were connected. "As you know," she told Sara, "all green plants take in carbon dioxide from the air and water from the soil. The plant combines the carbon dioxide with the hydrogen from the water molecule, and makes glucose, using the energy provided by the sun to power the reaction. Oxygen is released as a waste product."

Dr. Harris explained that some of that energy from the sun is stored in the bonds that hold the glucose molecule together. The glucose is then dispersed to every cell throughout the plant. The plant cells then break down the glucose molecules, releasing the stored energy, and use the energy to power all the cell's life-sustaining functions. Some of the glucose that enters the roots is taken up by the fungus's mycorrhizal hyphae network. Thus, the fungus takes its share, and the rest travels on to every other tree

that's connected to the network.

"You use a tracer to follow the glucose from one tree to another?" Sara asked.

"Exactly." Dr. Harris pointed to the canisters of gas. We're going to follow the same procedure used by Suzanne Simard in her classic experiments showing transport through the mycorrhizal network. We'll erect a tent around a young Paper birch, and then we'll inject radioactive carbon 14 into the tent. We'll leave the tent up long enough for the birch to take up the carbon dioxide through photosynthesis, then we'll check other trees in the area with a Geiger counter to see if the C-14 shows up in any of them. That way we can follow the carbon to all the trees the birch is connected to. Based on previous research, though, we believe that birch is connected to only Black Spruce." Dr. Harris pointed to a young Black Spruce tree about twenty feet away and another about the same distance in the opposite direction. "We're also going to check the Birch Bolete and the mycorrhizal network between the trees to confirm the path goes through the Birch Bolete."

"How long does that take?" Russel asked.

"Hopefully, we should have some answers by the end of the day. We'll have to wait until at least tomorrow or the next day to test new mushrooms that grow to see if the C-14 is incorporated by them, and if it is, where does it wind up - that is, what molecules in the mushroom's structure incorporate it. We want to see if the C-14 becomes part of the polysaccharide anti-viral. That we'll do in the lab."

Sara and Russel watched as Dr. Harris picked out a young birch tree about 8-10 feet high and, along with Josh and Rosylyn, erected a tent of clear plastic that completely enveloped the tree.

"Are you going to do back communication using C-13?" Sara asked.

"You've been doing your homework, Sara! That's good." Dr. Harris was delighted that Sara had done some preparation and had a grasp of the research being conducted. "Yes, we will be checking to see if the participants are back communicating also. We want to see if there is communication both ways.

"To do that, we'll cover a Black Spruce with a tent, just as we did with the birch, introduce carbon dioxide with C-13 into the tent, and see if the C-13 shows up in the birch. If it does, that will establish the existence of two-way communication."

The researchers completed setting up the tents over the young trees and secured the bags at the bases. They then marked all the existing Birch Bolete mushrooms in the test area with small flags. They wanted to be able to identify and sample new mushrooms that came up after the radioactive carbon dioxide had been added to see if the C-14 was incorporated into its structure.

When everything was ready, Dr. Harris grabbed one of the canisters labeled C-14, added a short length of clear plastic tube to it, and opened the valve slowly. She heard the gas begin to issue out of the valve. When the tube was full, she clamped it off. Josh Linn handed her a syringe, and she pushed the plunger down, emptying it of air. Dr. Harris then stuck the syringe needle into the tubing and slowly drew back the plunger, filling the syringe with radioactive carbon dioxide. She then poked the syringe through the plastic of the tent surrounding the White Birch tree and emptied the syringe into the tent.

Everyone watched as Dr. Harris did the same thing to the Black Spruce using the canister of C-13. Sara and Rosylyn were recording every detail of the process in their notebooks, as well as taking photos. “All right, now we just have to wait.”

“The next site is only eight miles from here. Do we have time to set up another experiment?” Russel was anxious to get as much done as possible. Some of the sites were quite a distance away, and a lot of time would be eaten up just in travelling to get to them.

Dr. Harris looked at her watch. “Sure, we can get one more done today.” She asked Josh and Rosylyn to pack up everything. After everything was loaded up, they headed to the next site. By the end of the day, two sites had been tested. They drove back to Fort Simpson just as the sun was beginning to set. No one had eaten all day. They were exhausted and hungry, but happy to have accomplished so much. Russel found a small café still open when they reached town, and they stopped to eat. Tomorrow, they would check the results.

Early the next morning, they all went back to Site 1. The ground, continuously moist in the light shade, was dotted with new mushrooms that had burst through the leaf litter and mosses overnight. Rosylyn pulled the Geiger counter from the truck and handed it to Dr. Harris. “Want to do the checking, Dr. Harris?”

Dr. Harris took the Geiger counter and walked over to the young Paper Birch, still covered with plastic. Josh removed the cover surrounding the tree, and Dr. Harris turned on the machine. She guided the wand around the birch and heard the distinct scratchy sound of radioactivity. “OK. We know the birch took up the C-14.” Even though autumn was in full swing, the birch still managed to take in enough carbon dioxide. Plants were still photosynthesizing.

“All right, let's see if the Black Spruce is taking in the carbon.” Dr. Harris moved over to the Black Spruce and, after Josh removed the tent, she ran the wand of the Geiger counter up and down the trunk and around the needles. Again, there was the distinct sound signaling the presence of radioactivity. Everyone smiled. There came a measured, low-key, “yay” from Rosylyn.

“Now let’s check to see if we have C-14 in the mushrooms.” Dr. Harris asked Josh to cut some of the new mushrooms that appeared midway between the birch and the Black Spruce from their bases and bring them to her. Once again, there was the unmistakable sound of radioactivity in the mushroom. “Good,” Dr. Harris said. “ We have a connection between the Betula papyrifera, Picea mariana, and Leccinum. We know they are sharing the carbon.”

“What about the C-13?” Russel asked.

“C-13 is not radioactive. It’s a stable isotope. We measure that with a mass spectrometer. We’ll have to take samples of all the connected participants back to the lab and check each for C-13. Then we’ll have a clearer picture of the network.”

Dr. Harris got down on her hands and knees and carefully dug down into the humus layer surrounding a newly formed Birch Bolete. Rosylyn handed her a specimen bag, and Dr. Harris collected Leccinum mycelia from the soil and placed it in the bag. She was able to identify a number of different fungal species in the humus and collected all she could find, depositing them into separate bags.

Dr. Harris went over to the Black Spruce and dug down into the humus near the base. She was surprised to see a different species of fungus growing in close contact with the spruce roots.

“That’s very curious,” she said to herself, as she carefully removed a sample and delivered it into a specimen bag.

Sara noticed the special attention Dr. Harris was paying to the spruce tree. “What’s so special there?”

“Might be Melinomyces. I want to get a sample. Could be

important."

"What is Me-lin-o-my-sees?" Sara asked, slowly pronouncing the name of the fungus.

"Melinomyces. It is an arbuscular mycorrhizal fungus... different from the Leccinum, which is an ectomycorrhizal fungus." She answered. Then she called over to Josh and Rosylyn, "Get samples of the Leccinum fruiting bodies and mycelium, the spruce needles and roots, birch roots, and more of the Melinomyces. Keep them separated and make sure to label everything."

"All life is connected, and all life is connected to Mother Earth. We have known that for a thousand generations." Russel didn't seem surprised.

Sara agreed. "If only Europeans had not been so arrogant and consumed with their own self-importance, they would have recognized the wisdom and experience of the First Peoples here, and we'd be so much better off now."

After all the samples were collected and safely stored, the group loaded up and went on to the second site. A quick check with the Geiger counter revealed no surprises there either. The same relationships – the same network - existed: Paper Birch was connected to Birch Bolete; Paper Birch was connected to Melinomyces, which was connected to Black Spruce. The major players and the big picture seemed clear, but many more sites would have to be tested before they could be certain.

What wasn't clear yet: was Birch Bolete connected to Melinomyces?; and how was the unique polysaccharide formed? The answers lay somewhere within the symbiotic relationship that existed between the four species. Dr. Harris was optimistic they would find the answers to those questions in the lab.

Over the next three weeks Russel Penkay and the three researchers traveled to all the sites where they had previously collected samples of the Birch Bolete. Although autumn was deepening, the weather remained unseasonably warm, and they were able to collect enough data to confirm Dr. Harris' initial suspicion concerning the network participants. Sara left the group after a week and a half, flying back to Canberra, but remained in close touch with Dr. Harris as she finished her field work and then began lab tests.

Dr. Harris established that there was a connection between Paper Birch and Black Spruce through an endomycorrhizal network

of Melinomyces variabilis (she had confirmed the species through genomic sequencing). Melinomyces, in its relationship with Paper Birch, was in close physical contact with Leccinum holopus. Thus, there was a connection between the two fungi, also allowing transport of organic carbon as well as minerals between the two. Spectrophotometric analyses of C-13 proved there was a two-way path between the two trees, through the mycorrhizal network. All four participants were connected in one big network and could pass chemicals back and forth to each other. It was a “marvelous symbiotic collaboration,” Dr. Harris said. Since the Boreal Forest in North America spanned the entire distance from the Pacific Ocean, in the west, to the Atlantic Ocean in the east, and each species was common throughout, it was possible that a communication network existed between hundreds of millions of trees and millions of miles of mycorrhizal pipelines.

38

15 December 2028 Friday
University of British Columbia, Vancouver, Canada

After completing the field work, Dr. Harris took up laboratory and greenhouse studies to throw more light on the secrets of the mycorrhizal network. In late September, she had constructed twenty-four raised beds, giving her three replicates each of eight different combinations. The eight combinations were:

4

Leccinum
Birch
Spruce
Melinomyces

7

Leccinum
Spruce
Melinomyces

The reason for all the combinations was to determine which relationships produced the unique polysaccharide. All the beds contained Leccinum, the White Birch Bolete, because it was the fungus where the polysaccharide showed up. Bed 8 served as a control of sorts. No unique polysaccharide was expected to be found there because it had already been established that one or more members of the Complex, in addition to Leccinum, were required to

produce the unique polysaccharide. .

All the beds contained native forest soil. In the beds containing the two fungi, Leccinum and Melinomyces, Dr. Harris used pure cultures. The Birch and Spruce were young nursery-grown stock that were free of either fungus. All beds were isolated from each other. After the beds were set up, the plants were watered and fertilized on a schedule and provided with artificial light and heat for 3 months, until mushrooms appeared. The mushrooms were then assayed for the unique polysaccharide.

As expected, Birch Bolete mushrooms appeared in all beds. Also expected, no unique polysaccharide was found in the mushrooms from Bed 8.

The big surprise, what no one expected: *no bed produced the unique polysaccharide.*

Dr. Harris was at a loss to explain the results. All the known elements of the Complex were present - White Birch, Black Spruce, Leccinum and Melinomyces. Even the soil was the same soil found in the forest. It was clear that some as yet unknown variable was missing. But what?

It was a huge setback to the project. A huge setback to understanding the Complex. Dr. Harris could not go back to the forest to find the answer. It was winter, there was snow on the ground, and the trees were dormant. She could not go back until the following summer - six or seven months from now, at the earliest.

It meant there was only one source for the anti-viral at the moment. The natural forest. It couldn’t be grown in a greenhouse, and it couldn’t be made in a lab. And there was no vaccine yet.

39

28 December 2028 Thursday
World Health Organization
Geneva, Switzerland

In Geneva, Switzerland, the World Health Organization was about to start another press conference to update the world on the Pandemic and its efforts to stop the deadly virus. For more than a year now, there seemed to be only bad news, as RSV spread to every corner of the globe. But today, for the first time, health officials had reason to be hopeful.

The room was packed to capacity, and filled with the sounds of a hundred conversations, all going on at the same time, as reporters anticipated the latest information about a potential anti-viral. On a stage, in the front of a WHO Briefing Room, sat five individuals on cushioned chairs.

Dr. Astrid Pedersen, the Director General of the World Health Organization, got up from his chair and walked to the podium at the far left side of the stage, and faced the reporters. As he lifted the microphone to speak, the conversations ceased, and the noise in the room died down to a whisper.

“Good morning. Thank you for coming. We have a lot to cover this morning, so we’ll get right to it. Here today is Dr. John Shefler, WHO Director for Health Emergencies, Dr. Emma Harris, from the University of British Columbia, Canada, who isolated the fungal antiviral, Dr. Ayesha Hassan, Principle Investigator for Astra Zeneca

Pharmaceuticals, who has been conducting trials with the fungal anti-viral, and Dr. Georges Desjardins, Lead Researcher for Pfizer Pharmaceuticals, one of a great many research institutions working on the development of a vaccine for RSV. Before they present their findings, I would like to make a few introductory remarks."

Director General Pedersen was sixty-five years old, a short, stout man, with a large, squarish head, bulbous nose, and thick lips. His eyes were dark and penetrating, and almost hidden beneath a large brow and thick bushy eyebrows. His hair, once ample, was now thinning on top. He remained at the podium, looked down at his notes for a moment, then up at the reporters.

"Children are our legacy, our hope for the future... and we are losing them at an alarming rate. Conditions remain grim, despite having the best minds in the world working on a cure. They are working tirelessly day and night, learning more about the virus every day, but the virus is not giving up its secrets easily.

"But, today, I am happy to inform you, there is some reason for hope. We have found a natural anti-viral chemical that works against Respiratory Syncytial Virus. Nature has given us a gift. But so far, we know very little about this anti-viral chemical, how it is made, and how it works. Much more work is needed. There is still a long road ahead. It will not be easy to defeat this foe."

Director General Pedersen then admonished the world's leaders and made an impassioned plea. "We were lulled into a false sense of security by the speed with which we developed a vaccine for SARS CoV-2, and we expected to do so again with RSV. We were wrong. It is doubtful that the speed of the Covid19 vaccine development will be repeated with an RSV vaccine. It will take years to develop a vaccine for RSV. The men and women at this table and in laboratories around the world have made progress, and the dedicated people here today will tell you about their work and what they have found out. But they will also tell you how difficult the path will be. The anti-viral chemical is a very large and complex structure, and we do not yet know how it functions. Also very complex is the process by which it is made. Because we know so very little about its nature, we have, so far, been unable to synthesize a vaccine that would mimic it.

"The good news is, we *do have an anti-viral, and we do have the capability to deliver it to millions of children.* And the reason we do is cooperation. Scientists and health experts around the world are

working together, sharing information, running clinical trials, building the infrastructure, shipping and delivery systems, and doing the work of developing a vaccine. It will take that same kind of cooperation from all the world's leaders to make this effort successful. They must put aside their selfish desires, petty grievances, mistrust, and greed. They must protect this gift nature has given us, because it is threatened by a world that is warming faster than we ever thought possible. So, I implore all world leaders, especially those of the so-called developed world, not to squander this moment."

"I will now let Dr. Shefler update you on the latest information concerning the pandemic."

Dr. Shefler got up from his chair and walked to the podium as Director General Pedersen sat down. He raised the microphone and pulled it closer. "There is no way to play down these numbers. We are in the midst of a Pandemic that is unprecedented in modern memory. It is sobering, and also humbling, to realize that we cannot control everything in nature, that an organism so tiny we cannot even see without the aid of powerful magnification can so profoundly affect the way we humans think, act, and live."

Dr. Shefler continued. "As of December 4, which are the latest figures we have, the average number of deaths per day worldwide is 547,625. The total number of deaths since the pandemic began is 183,480,000. We estimate that 52% of those cases and deaths are children under five. That translates to 95,409,600 children we have lost worldwide to this new variant of RSV. The mortality rate is still approximately 95%. The new strain does not seem to have mutated again, so we are still dealing with RSV A2.2.

"As Dr. Pedersen mentioned, there is some reason for hope, though. In early April of this year, we began to hear rumors that some children in Canada's Northwest Territories were immune to the RSV virus. A team of epidemiologists was dispatched to the area to investigate. They did indeed find that there were children who were immune to RSV, that those children were Indigenous, and subsequent interviews and investigations led to the discovery - I say discovery, because it was new to us in the medical field, but not to those Native Americans who had been using it - a discovery that an element in their diet that they had apparently been consuming for perhaps centuries, was responsible for that immunity. That element was a mushroom, and it contains a unique polysaccharide anti-viral.

Dr. Harris will elaborate on this next. Dr. Hassan is conducting clinical trials with the mushroom isolate, and Dr. Desjardins is working on a synthetic vaccine.

"The people on this stage are representative of thousands who are doing remarkable, very difficult work. The scientists here will report to you on the progress being made by those thousands of dedicated researchers. But, as they will tell you, we have a long and difficult road ahead of us. Until we have the vaccine in hand, it is imperative that we continue to observe basic sanitary procedures. They are our only line of defense right now to protect our vulnerable population. Wash your hands frequently, especially before touching an infant. Wear a mask. Wash toys and sanitize the baby's environment regularly. If you have symptoms, stay away from young children if, at all possible. If your child's symptoms become worse, seek medical intervention. We still do have interventions that have proven valuable in fighting the disease."

Dr. Shefler concluded, "I'll turn the discussion over to Dr. Emma Harris now. She has a great understanding of the mushroom, the anti-viral, and the underground network that supports it."

Dr. Shefler acknowledged Dr. Harris, then walked back to his chair as Dr. Harris walked to the podium.

"Thank you, Dr. Shefler," Dr. Harris said, as she pushed a small platform from the side of the podium to the back and stepped up on it. She grabbed the microphone, pulled it back down, and began to speak.

"The area where my team and I conducted research into the fungal anti-viral is sacred ground to the Dene People, who have lived there for tens of thousands of years – since they settled there at the end of the last ice age. The Dene have a pact with the Canadian Government to watch over the land and be considered in any discussions that affect those lands.

"This point," Dr. Harris emphasized, like a footnote that needed to be pointed out, "is something you will hear over and over in these discussions, because it is important to remember. A pact is a contract, not to be followed only when it is convenient, but permanently, or until it is agreed to be modified by both parties. For too long, white people have ignored contracts they've entered into with Indigenous Peoples when it no longer suited them, especially when they "gave land" to them (here, Dr. Harris raised her hands to eye level and gestured air quotes, suggesting the land

was not theirs to give in the first place, but land they had stolen).

Having made her point, she continued. “When it was discovered that a mushroom was growing on their land that could potentially save the lives of countless children across the world, they did not hesitate to offer assistance. For that, the world is grateful.

“When my graduate students and I arrived in Fort Simpson, Northwest Territories, Canada, we were met by Dene Elder Russel Penkay, a spokesperson and representative of the Dene Nation in the area. He guided us to many of the sites where the Dene collected the fungi we were interested in. We investigated each site and then took samples of the reproductive structures – the mushrooms.

“In our lab, we identified the fungus and assayed it for structural components. The fungus turned out to be a subspecies of Leccinum holopus, the White Birch Bolete, an ectomycorrhizal fungus common in Boreal forests and usually associated with White Paper Birch. Through the assay process, we identified a unique polysaccharide – a carbohydrate and structural component of the cell wall – as the antiviral agent.

“When we cultured the fungus in isolation and assayed it for the unique polysaccharide, we were unable to detect it in the new growth. That led us to believe that a complex of environmental conditions was responsible for the production of the antiviral. Not just a single species acting on its own. We went back to the sites in the forest and ran some tests to determine what else in the environment was enabling the mushroom to produce the anti-viral. We determined that there were three other species linked to the White Birch Bolete – two trees and another fungus. The trees were White Paper Birch and Black Spruce, and the other fungus was Melinomyces variabilis, a common fungus of Boreal forests that does not produce a mushroom. It is entirely subterranean. All four were linked together in a complex mycorrhizal network, sharing nutrients and water and communicating with each other by means of signaling chemicals in a remarkable symbiotic relationship.

“When we tried growing the four symbionts in a controlled environment, in a greenhouse, we found the anti-viral was not produced, suggesting there is some other environmental condition necessary for production. We do not believe that it involves another plant or fungus but we won’t be able to do any further testing until next summer, unfortunately, because it is winter and the trees are

dormant.

“We, and a number of other institutions, are now conducting studies to work out more of the details of this complex symbiotic relationship. Until that happens, the only way we can obtain the anti-viral is by harvesting naturally growing mushrooms of the White Birch Bolete.”

Dr. Harris thanked the audience and walked back to her chair.

Director General Pedersen returned to the podium, thanked Dr. Harris, and asked Dr. Hassan, from AstraZeneca, to speak on the results of clinical trials using extracts made from the White Birch Bolete.

Dr. Hassan walked to the podium, tapped on the microphone to make sure it was working properly, and then began to speak. “Good morning. Natural medicinals have been used for centuries, if not longer, to prevent and treat diseases, first by Indigenous Peoples and now by modern society.

“Natural anti-virals, especially from fungi, have been only cursorily explored, but are getting increased attention now, especially since SARS CoV-2. Medicinals derived from mushrooms and provided as a dietary supplement have proven very effective as treatments for coronaviruses. Therefore, the discovery that a fungal antiviral had been reported against RSV was not entirely surprising, although it was welcome news – and we needed welcome news!” Dr. Hassan smiled and looked around. Her smile was met with assenting nods and expressions of agreement.

Dr. Hassan continued. “Because the anti-viral mushroom had been in use for a very long time, and we seemed to have very good data on its efficacy, we were quickly able to move from Phase I Clinical Trials to Phase III. We went through Phase I mainly to gather some data on how well the antiviral worked on a diverse group of people from different demographic backgrounds. Previously, we only had knowledge of its use by Indigenous Peoples.

“We were generally happy with the results of the Phase III trials. Three thousand children, aged three months to five years, and 1000 adults between the ages of 65 and 80 participated in the study. Two thousand nine hundred forty children showed no serious symptoms of RSV after having received the antiviral and exhibited no noticeable allergic reaction. Nine hundred eighty adults showed no serious symptoms of RSV and no allergic reaction. That compares to

a ninety-five percent mortality rate in the general population. This is good news!"

Dr. Hassan let those numbers sink in for a moment. "We did record side effects that might prevent a small segment of the population from using the antiviral. About 2 to 3% of the general population are allergic to the proteins in mushrooms... and that is what we found in the trials. We recorded 2%, or 80 individuals out of 4000 in the study group, who experienced side effects. Most symptoms were mild, ranging from rash, nausea, stomach cramps, and sneezing to runny noses. Of the 80 individuals that experienced side effects, 5 were more severe – swollen tongue and throat, vomiting, diarrhea, and difficulty breathing. One individual went into anaphylactic shock, requiring epinephrine."

Dr. Hassan stopped briefly, then concluded her briefing. "Overall, the fungal antiviral was effective against RSV. No mortalities and no serious symptoms that would require further interventions or hospitalizations – not even a doctor's visit. We would recommend its use. The World Health Organization is reviewing all the data at this point, but we are hopeful that the antiviral will be recommended for general use in its natural form. There are caveats, however.

"First, until the natural anti-viral can be further refined to eliminate the proteins that cause allergic reactions, individuals who are allergic to mushroom proteins should take the antiviral with caution. We recommend testing infants and young children, as well as elderly and immunocompromised individuals, first for compatibility. Most adults will already know if they are allergic and how strongly they are likely to react to the antiviral.

"Second, and most important, the antiviral is quite limited in supply. It is a natural product and must be harvested, making it subject to the whims of the weather, as well as other factors. Dr. Harris alluded to this in her briefing."

Dr. Hassan then looked back toward Dr. Pedersen, smiled, and nodded, signaling she was finished with her talk. She went back to her chair and sat down.

Dr. Pedersen, still seated and with a microphone in his hand, looked down the line to the last of the speakers, Dr. Georges Desjardins. "Dr. Desjardins will now brief you on the status of the ongoing research aimed at the development of a synthetic vaccine for RSV. After he is finished, we will open up the briefing for

questions. We do not have a lot of time, but we will try to answer what we can. “Dr. Desjardins?”

Dr. Desjardins walked to the podium. He stood quietly for a few seconds, then began his briefing.

“It seems everyone before me has had some positive news to present to you today. I would like to add to that also, but, alas, I cannot, at least not in such abundance, Dr. Desjardins apologized. “Making an effective vaccine is very hard. The usual time frame is 10-15 years. When I say that to people nowadays, the reply is usually, ‘You made a Covid vaccine in less than a year. Why will it take so long?’ That’s true, we did. But the Covid vaccine was, as Dr. Shefler mentioned a while ago, an outlier – a rare occurrence in vaccine research. It bears repeating that we were very lucky. RSV is different... or more accurately, more like the average pathogen that we develop vaccines for.

“When we set out to develop a vaccine, we first have to study it. We have to understand its structure and biology – how it makes us sick. Once the structure is understood, we decide which part of the virus will make the best target. This part becomes the antigen. We then disable the antigen so it can’t do its job and make you sick. The antigen is then introduced into the body to elicit an immune response and the production of antibodies and T cells. This response helps the body build up reserves of T cells that remember the antigen. When the actual virus attacks the body, this reserve is called on to fight the virus. In theory, it is quite straightforward.”

Dr. Desjardins, his head stretched forward, looked out over the top of his dark-rimmed eyeglasses toward the reporters, stroking his gray and white beard. “RSV has some unique characteristics that make it difficult to develop a vaccine against. First, it targets young children, infants to about five years of age, but especially those under three months, whose immune systems are quite immature and do not respond vigorously to an infection.

“Second, the virus mutates easily. It has two proteins that are important to the attachment to and penetration of the respiratory cell. They are called RSV-G and RSV-F. RSV-G helps the virus attach to the cell and provides a base for RSV-F to enter. RSV-G is the most variable of the two, and forces us to constantly play catch-up with target development. No one is even sure what the host protein target is. We are also not yet in agreement as to what the F protein is attracted to within the cell. So, we still have a long way to go to

just understand how the virus functions. There is a considerable amount of research going on now to better understand its structure and how it functions. Progress is being made, but it is slow. We know a great deal about mushroom polysaccharides in general – that they are immune modulating, anti-viral and anti-bacterial, that they are anti-inflammatory, that beta-glucans are found only in fungi and are the polysaccharides that figure prominently in immune system modulation. Our best hope in the short run is to develop a synthetic copy of the natural chemicals found in the mushroom."

Dr. Desjardins continued on with some historical background on the use of fungal medicinals. "Traditional Chinese medicine has included fungal-derived medicines for centuries. The China Food and Drug Administration has approved patents for polysaccharide capsules, liquids, and injectable treatment for hepatitis and immune system regulation. They are way ahead of Western medicine in recognizing the value of natural products. And, it has already been alluded to here that fungal extracts have been relied upon by Indigenous Peoples around the world for thousands of years.

"Although making a synthetic drug based on an already existing and proven natural product is the shortest route to a vaccine that can be mass-produced for billions of people, there are obstacles here, too. Large molecular weight polysaccharides are very complex and not easily built. Small changes in the frequency of side branches affect their biological activity."

Some reporters were looking at each other, apparently having some difficulty understanding all the complex terminology.

"The unique polysaccharide is only minimally soluble in water, making it difficult to get it into a form for clinical use. One outcome of this impasse is unacceptable side effects such as inflammation. At small scale, the natural anti-viral works very well. It exhibits none of these drawbacks or side effects. The reason it works well is it is part of a daily diet given in small quantities. Over time, it builds up in the body and subtly prepares and modulates the immune system. Used in this way, it does its job perfectly."

There was not a great deal of room for optimism, but Dr. Desjardins did his best. "As I said, we know a great deal about the unique polysaccharide and are learning more each day. We will be able to synthesize it in time, but, as has been stated here, we already have an anti-viral that works. Until we can mass-produce

the molecule synthetically, we must rely on the natural product. That means preserving it, protecting it, and cooperating to make the best use of it." Dr. Desjardins concluded his brief, thanked the room, and sat back down in his chair.

Dr. Pedersen picked up his hand microphone, stood up, and opened the briefing up to questions. "We will do our best to answer any questions you may have. Please direct your question to the individual you think can best answer it. Hands immediately went up and Dr. Pedersen pointed out the first person.

"Fred Jacobs, UPI... Dr. Harris, can you elaborate a bit on the mushroom complex? Is it distributed wider than Canada? And is the polysaccharide found anywhere else?"

Dr. Pedersen walked over to Dr. Harris and handed the mic to her.

"Three of the four members of the complex, White Birch, the White Birch Bolete, and Black Spruce, are only found from Alaska to the east coast of Canada. Melinomyces, the endomycorrhizal fungus, seems to be widely distributed, found also in New Zealand, Norway, Finland, Germany, Great Britain, and Ireland. So, although the complex itself is found throughout the Boreal Forest of Canada, the complex that produces the antiviral seems to occupy a smaller area – from the Alaska/Canada border in Yukon Territory, across the Northwest Territory to Nunavut, near Hudson Bay. We don't believe the antiviral is found below the southern borders of Yukon, Northwestern Territories, and Nunavut. Many sites outside this area have been checked, but so far, the antiviral seems to be restricted to the area I just mentioned. We believe that a mutation occurred in the middle of this area a few hundred to a thousand years in the past and spread outward to its current limits. In time, it will spread further, but will be limited to the distribution of the White Birch and the Black Spruce."

Near the back of the room, a reporter shouted out a question, but couldn't be heard clearly. A man with a microphone quickly rushed over to the reporter as he finished his question and held the mic close in to his mouth. He repeated the question, "Dr. Harris, are we in danger of losing the Boreal Forest to climate change? Isn't it shrinking in size? Uhh... Eduardo Macedo, Rio Times."

Dr. Harris took a breath, then responded. "Boreal forests around the world are threatened by an array of factors. A warming climate is one. Droughts, wildfires, and insects are others. As the world

warms, the trees try to spread further north to stay within their growing range. At the same time, their southern borders are shrinking to the north. We have reason to believe the shrinking of the southern margins are outpacing the northern advance, so the forests in general are becoming smaller."

Dr. Harris paused again for a moment. "We are not in any danger of losing the forests in the immediate future, but if we do not move to save them now, we may reach a tipping point within ten years and not be able to save them, no matter what we do. The immediate danger right now is, we could cross a tipping point where the anti-viral cannot be produced because the temperature in the forest is too high. The process is temperature-limited, and we may be near the upper limit. If we cross it, we will not be able to get back, and we lose the anti-viral forever. World leaders need to listen to scientists and health experts."

Dr. Hassan broke in just as Dr. Harris finished, adding, "Let me add, currently, we have very few anti-viral agents and vaccines to fight viruses and, as we continue to disrupt and destabilize the environment and the Earth's ecosystems, we lose more and more potential sources for natural medicinals and models for synthetic agents... and we expose ourselves more and more to pathogens that were once physically remote or less prone to mutation."

Hands went up throughout the room, accompanied by shouts to gain attention. It was clear that there were more questions than could ever be answered today. Dr. Pedersen stood up. "I am sorry, but we have time for just one more question." He looked around, then pointed to a young woman in the third row, about halfway in. "Yes."

Sara stood up and accepted the microphone as it was passed down to her. "Sara Campbell, NBC. Dr. Pedersen, can you tell us – have you been in discussions with other world leaders to formulate a plan as to how the available natural anti-viral will be distributed among the world's peoples... and how you plan to safeguard that supply until a synthetic vaccine is developed and made available in quantities sufficient for all the world?"

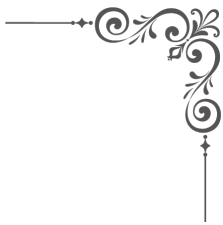
This was the question everyone in the room wanted to ask and the one the world wanted the answer to. The Director General picked up his microphone, got up from his chair, and walked around to the front of the stage. "We are in talks with all the world's leaders, but it is early in the process. Everyone is aware of

the stakes and the urgency. The task seems simple, but the issue is complex, with a great many concerns. Saving our children is the world's number one focus, and doing so in an equitable manner is crucial. Time is of the essence because each day we do not implement a solution, we lose half a million children and older adults to this disease.

"We are approaching this from two directions. First, we have a natural anti-viral that we can harvest. Second, we are actively working on a synthetic vaccine to eventually replace the natural one, and be manufactured in quantities large enough to vaccinate everyone."

Dr. Pedersen paused for a moment to allow the upside to soak in. Then, he presented the downside. "The obstacles we face are these: the mushroom is naturally occurring and is in limited supply, and grows for only a few months out of the year; how to harvest the mushroom without destroying the land on which it grows; who is treated with a limited supply; the logistics of harvesting, transporting and administering the antiviral; and protecting the Boreal forest."

Dr. Pedersen had been waiting for an opportunity to hammer home the most important task humanity has ever faced. He finished with what he hoped would be the motivation the world needed to save itself. "This last obstacle can be considered the most critical of all. Dr. Harris made it very clear. The stark reality is that if we do not immediately commit to the Paris Accords on the Climate, and make them enforceable, we will have no Boreal forest and we will be committing ourselves to ending civilization - and to the likely extinction of the human race."



Part 3

Warming

If you really think the environment is less important than the economy, try holding your breath while you count your money.

Guy McPherson

40

It was pretty clear by the 1970's that humanity was adversely affecting the earth's natural systems. Our suspicion that we could do so dates back to 1896, when Arrhenius speculated that CO2 released into the atmosphere from burning coal could raise the temperature of the earth. It had already been established seventy two years earlier that carbon dioxide, as well as water vapor, could trap radiant heat escaping from the earth. In the 1930's, Guy Callendar, an English steam engineer, argued that global heating was already beginning. Charles Keeling, in 1960, produced the first charts showing that carbon dioxide levels were indeed climbing steadily. The continuous climb of the Keeling Curve was a visual confirmation that carbon dioxide (and global warming) was real.

Continuing studies during the 1970's painted a clearer picture of how very complex the climate system really is. Multiple forces, both natural and man-made (fossil fuel use, earth orbital dynamics, volcanic eruptions, water vapor and clouds, aerosols, wildfires, ruminants) acted on the climate system to bring about changes. The climate seemed to be in a delicate balance. New information coming in from ice cores indicated that large fluctuations had occurred in the past. In 1979, with concerns in the scientific community rising, the U.S. National Academy of Sciences issued the first warning to the world about the changing climate. With a doubling of atmospheric CO2 concentration from pre-industrial times, the Academy said, the average temperature of the Earth was likely to rise 3 degrees C over the next century.

In 1985, at a Senate Environment and Public Works Commission hearing, chaired by Minnesota Senator David Durenberger, and assisted by Senator Al Gore from Tennessee, five scientists testified about what they felt was a growing threat being carried out by humanity – a warming climate. The first speaker was Carl Sagan, a well-known astronomer, astrophysicist, and author, who was invited to the Commission hearing because of his ability to breakdown difficult to understand ideas into a form that could be grasped by the average person. In his opening statement, he acknowledged his concern that Committee members might not believe that the climate was warming and that it posed a danger to humanity, but he urged them to take it seriously and to look for solutions. He stressed that the warming was real and that humans had reached a point in their evolution where they could affect the environment with their sheer numbers and technology.

Sagan frankly recognized humanity's propensity to kick the can down the road, to push off the responsibility for distasteful action into the future, that it wasn't our problem, but he admonished all humanity for our shortsightedness. He said the problem was intergenerational and global, and that we would have to develop a global conscience.

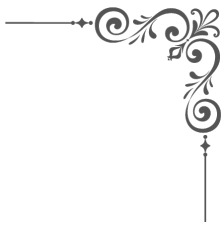
Other scientists speaking before the committee, however, said the data was not conclusive, and they could not say with certainty that, if the world continued on its present path, a catastrophe was guaranteed. They all agreed that the data did point to a destabilization of the climate within fifty years, and that what humanity did now to limit temperature increases would affect every aspect of society into the future. They urged for continued research.

Senator Gore ended the testimony by admitting a personal belief in the accuracy of the science, that, in his opinion, the world should act immediately to respond to the threat, but he admitted that politicians, by nature, were slow to act, and want undeniable facts and data before making a decision. Gore, of course, was being kind about the "nature" of politicians. He knew as well as anyone that politicians do not answer to the public, but serve wealthy, special interests. He thanked the experts for their testimonies but said more research would be necessary.

Three years later, a NASA scientist appeared before the U.S. Congress, urging action. James Hansen presented data, with what he called 99% accuracy, that supported his conclusion that the

earth was indeed warming, and warming enough to be noticed by the average person. Data indicated there would be more warming over land areas and at higher latitudes, and that warming would be greater in winter than in summer. More importantly, Hansen stated, the warming was a new trend and was too large to be a chance, natural fluctuation. He, too, called for increased research to more clearly understand the Earth's climate system and how it was reacting to human influence.

Over the next forty years, ever more sophisticated analytical tools, satellite data, and climate studies conducted by thousands of scientists and support personnel have enormously increased our knowledge of the Earth's climate system and made climate models more accurate and dependable. During that time, the world, under the direction of the United Nations Environment Programme and the World Meteorological Organization, created an international body, the Intergovernmental Panel on Climate Change (IPCC), and tasked it with reviewing all the available climate information, assessing its implications for the future, and making recommendations for collective action. Since its inception, the IPCC has continued to accumulate data on the state of the Earth's natural systems and published six Assessment Reports. Annual conventions are attended by representatives of all the world's governments, as well as experts in related fields, and other interested parties.



41

The peak of the last ice age was about 26,000 years ago. Temperatures then began to rise, and continued to rise, for the next 14,000 years, until about 9,000 to 12,000 years ago, when the Earth settled into a very stable period, the Holocene Epoch, during which the temperature varied by no more than a degree centigrade one way or the other. This period of relative calm, interrupted by only a few benign periods of cold, allowed for the dependable planting of seed and harvesting of crops, and establishment of settlements along the Nile, Indus, Yellow, Tigris and Euphrates river valleys. From these early settlements rose the first villages, then cities, then megacities, and the flourishing of human civilization and eventually globalization. It is the only climate modern humans have known. We have built everything based on an assumption that it would remain as we found it.

Stability persisted until about 6,000 years ago, when, with a population of perhaps 30 million people, up from 6 million at the end of the ice age, we began to make a measurable impact on the earth through deforestation and land clearing for agriculture and settlements. Atmospheric CO2, near 270 ppm at the beginning of the present interglacial, rose to about 280 ppm by the start of the Industrial Revolution. The explosive growth in industrialization, supported by vast deposits of coal, and later of oil and natural gas, fueled an expansion in trade and technology, the accumulation of wealth, and an exponential growth in population that has continued to the present day. The global population, reaching a little more

than a billion people by the start of the Industrial Revolution, has grown to more than 8 billion today. Carbon dioxide concentration in the atmosphere rose from 270 ppm to near 432 ppm by 2028, higher than at any point in the past 15 million years, accompanied by a sustained rise in the average temperature of the Earth to 1.5 degrees C, relative to 1880. The temperature departure from average temporarily crossed the 1.5 degrees C threshold in 2023 and again in 2024, in part due to a strong El Niño that began in mid 2023 and lasted through the following year.

The surprising and unexpectedly strong rise in average temperature that began in 2023 was evidenced in the extraordinarily high temperatures experienced over land and sea for the next three years. Average daily sea surface temperatures worldwide began to depart significantly from the 1982 – 2011 mean in March of 2023. Up to that time, the year-to-year increase was less than 0.1 degrees C. By April 2023, the departure was more than 0.3 degrees C – a phenomenal amount never seen before. It was nearly 0.8 degrees above the mean. By the summer of 2024, the temperature departure was more than 1 degree C, and it remained above 0.7 degrees C into the summer of 2028. Coral bleaching was widespread throughout the tropics. Water temperatures off South Florida were 38 degrees C – 98 degrees F.

Worldwide heatwaves led to seabird die-offs in the millions during 2024 and 2025. Dead common murres, auklets, and puffins washed up on beaches in the Pacific Northwest of the United States and Canada, from northern California to British Columbia – even larger than the massive losses of 2014 to 2019. The Mediterranean region experienced its hottest years on record, first from 2015 to 2019 and again from 2024 to 2028, killing millions of corals, sponges, algae, and mollusks. A billion mussels and clams, barnacles, hermit crabs, and other crustaceans and worms died during the same time. The Earth crossed a tipping point for the viability of warm water corals in 2025. Sockeye salmon had to be moved from warm coastal rivers and trucked to cooler waters in the western U.S. and Canada.

The warming temperatures were not just deadly to wildlife. Heat domes that sat over widespread areas from North America to Europe to the Middle East and Asia wreaked havoc on human populations. In 2003, 70,000 people died from heat-related stress. Between the years 2000 and 2028, more than 125 million people

were exposed to deadly heatwaves.

More than 175 years of relentless growth was destabilizing the planet's climate and ecosystems, and was now threatening civilization. The real possibility of losing the Earth's Boreal forests and, with it, humanity's only means of survival - a life-saving natural anti-viral - would mean total collapse of the world's population, and civilization along with it.

42

9 January 2029 Tuesday
World Health Organization
Geneva, Switzerland

Dr. Astrid Pedersen opened the emergency meeting of the 194 member World Health Organization. Ten days earlier, the WHO had contacted each of the member states, asking them to attend this important meeting, where they would be updated on the current situation, discuss options moving forward, and reach a consensus on a Plan of Action they could implement immediately. Each of the member states had received an information packet at the time of contact detailing all that was known to date, along with a tentative list of the important Agenda items to be covered. Member states were asked to look over the list and reply as soon as possible with any additional items of importance so that they could be considered at the time of the meeting. It was the first time since the Pandemic began that they had something with which to fight back.

"Good morning, and thank you to all members for attending on such short notice. These are unprecedented times," Dr. Pedersen said. He looked tired. He hadn't slept well since the Pandemic began, and had been especially busy the past two weeks preparing for this meeting. He had, on the table in front of him, a small packet of papers – notes – and he referred to them as he spoke to the gathered nations, his eyes alternating between the notes and the delegates. As he made his points, he placed the notes to one side,

adding to them periodically.

“Recently, I visited a community on the island of Tuvalu,” He told the gathered delegates, “an island nation that seems far removed from the chaos that is enveloping the rest of the world. But, even there, seemingly isolated in the vastness of the Pacific Ocean, RSV is wreaking havoc. I spoke to mothers and fathers who were crying over the loss of their children, and they couldn’t understand how the rich nations of the world could still be bickering and fighting over unimportant issues when they should be working hard together to save our young. Tuvalu, as well as many other island nations, avoided the initial outbreak by quickly implementing protective health measures, and they managed to stave off the virus for nearly a year. But, eventually, resources ran low, security systems were breached, and healthcare systems were overwhelmed. RSV got a foothold.

“The people of Tuvalu responded,” Pedersen continued, “not by fighting among themselves, but by coming together – by helping one another. The Tuvalu Red Cross worked with the Ministry of Health on a contact tracing program. Communities cooperated by wearing masks, quarantining, cleaning their hands regularly, and limiting close contact. No one questioned what needed to be done, and they believed that everyone had a role to play in keeping their children safe. They believed they could get through this by working together. Tuvalu continues to have one of the lowest rates of spread in the world.

“The rest of the world – the more developed nations – can learn a valuable lesson from the people of Tuvalu. We are stronger and more likely to weather this pandemic if we come together. What we are seeing, though, is just the opposite. Nations are accusing one another of taking advantage of the Pandemic to gain economic and military advantage, of fomenting unrest to destabilize governments, of withholding medical and food supplies to gain favors… of promoting false and unreasonable theories about the causes of the disease. All of these actions only serve to separate us more in a time when we need to act as one.”

Secretary General Pedersen paused for a few seconds, looking around the room. He wondered to himself if he could reach into the hearts of the members there, get them to feel the pain of those suffering, and get their governments to act together.

“We have gathered here to come up with solutions. We do have

a way through this. It will not be easy. In fact, it will be very hard... but it is achievable. To defeat this enemy, we must put away our differences and work together as we have never done before, or we will surely perish. Today, we will hear from some specialists – experts – from the fields of ecology, health, climate, and environmental stewardship, who will discuss what our best options are, what we need to consider, and what we must do to regain stability and subdue the most immediate threat to humanity. But make no mistake. It is not our only threat. Respiratory Syncytial Virus is intimately linked to our battle to bring our climate back into a safe zone. For if we do not attend to climate change, we will not be able to end the Pandemic."

Dr. Pedersen looked over to his left and introduced his first speaker. "So, first to speak today is Dr. Emma Harris. She is a mycologist with the University of British Columbia in Canada. Dr. Harris, as you know, was called in to identify the mushroom that yielded the anti-viral, and also to isolate and characterize that anti-viral. The mushroom..." Dr. Pedersen caught himself before rambling further. "Well, I'll let Dr. Harris explain. Dr. Harris, you have the floor."

Dr. Emma Harris stood up and walked to the podium.

"Thank you, Director General Pedersen," Emma began. "The North American Boreal Forest is vast, and mostly wilderness. It's one of the few, mostly pristine, forests left in the world, largely because of its remoteness and, until now, its inhospitable climate, at least to most humans. It generally lies between 50 degrees and 65 degrees North Latitude, and extends from the western shores of Alaska, across the continent, to the Atlantic Ocean, to Newfoundland and Labrador... and from the southern border of Canada in the east, across to Lake Superior, up the eastern side of the Coast Mountains, to Alaska again. In the north, the Boreal Forest extends from the southern border of Nunavut to Inuvik on the Beaufort Sea and then west to the Pacific Ocean. In area, the North American Boreal Forest covers about 6 million square kilometers, or a little more than 600 million hectares."

Dr. Harris stopped for a moment to let the delegates take that all in. She couldn't help but wonder, as she looked at the delegates gathered before her, whether they cared. Most probably did - the smaller nations, the poorer ones, the ones that were struggling under the burden of climate change and a Pandemic. The small

island nations that were sinking below the waves. They cared. But the rich nations - the United States, the Europeans, Australia, even her home, Canada - they didn't care. The more they had, the less they wanted to give it up.

She had always had little faith in the goodness of mankind, that humans were capable of altruistic acts on any meaningful scale. Sure, they might go out of their way to perform some act of kindness if they could see the effect right away, but could they do something that wouldn't be felt for fifty years, something good they might never get to see? She didn't think so.

"The bounded area we estimate to contain the fungus-tree association is about 1 to 1.5 million square kilometers – a little less than 25% of the total forested area. The northern boundary follows the northern limit of the Boreal forest down to the southern border of Nunavut. From there, the southern border runs in a line to near Whitehorse in Yukon Territory, and then up around the northern border of the Mackenzie Mountains, to the Yukon River, near Fairbanks, and from there to Nunavut again. The densest concentration of the fungal association lies toward the center of the area, as it probably originated there and expanded outward.

"It is difficult to estimate the amount of the ectomycorrhizal fungus present in the Association area, as it is scattered greatly. Rock outcrops, lakes, rivers, marshes, swamps, and low wet areas lack the Complex, and much of the forest has not been surveyed, as there are no roads and few trails. It is difficult terrain to traverse. Large tracts of the forest have also been destroyed by wildfires, and that is only getting worse. So, again, without actually spending time in the forest, painstakingly surveying the area hectare by hectare, and we cannot do that until next August at the earliest, it is very difficult to estimate with any accuracy how many mushrooms may be produced there. A conservative estimate, based on the counts that were made by my team, and they were made in easily accessible areas last fall, would be between one hundred million and 1 billion."

Dr. Harris made it clear that surveying such a vast area would be extremely difficult at best, would require possibly thousands of individuals, and could only be done between August and October, when the mushrooms were present. If the survey and count could be finished by October, which was doubtful, it would be winter again, and another year would be lost by the time the mushrooms

would appear again and could be harvested.

Dr. Harris wrapped up her talk. The cure was there, she said, in that forest. It could very likely save hundreds of millions of lives - maybe billions. They would just have to figure out a way to get it.

The next speaker was Dr. John Berendt, a Canadian ecologist and forester from the Department of Natural Resources of Canada. He was a member of the Team of Specialists from the United Nations Economic Commission for Europe. He was a tall, thin, lanky man in his mid forties, with long, straight hair pulled back into a ponytail, and glasses that seemed a bit too big for his long, narrow head.

"Good morning, everyone. Dr. Harris just gave you some idea of the immensity of the area we are dealing with and the obstacles before us in getting the anti-viral mushroom. You keep hearing the word 'vast' when we talk about the Boreal Forest, but that's the only word that is adequate when describing it. The Boreal Forest is part of an almost continuous forest that circles the globe below the Arctic Circle. It is one of the five largest, nearly intact, forest systems on earth, spanning more than six million square kilometers in area, with possibly 500 billion trees. It's composed of dry uplands, meadows, bogs, fens, marshes, millions of lakes and ponds, and rivers. In fact, the largest peatlands, lakes, and rivers in the world are found in the Boreal Forest. The largest wetlands in the world are found in the lowlands of Hudson Bay and James Bay in Canada. They cover 370,000 square kilometers. The immensity of the Boreal Forest is hard to imagine without seeing it."

Dr. Berendt stopped for a moment to take a drink of water, then continued. "The primary coniferous trees of the North American Boreal Forest are White and Black Spruce, Balsam Fir, Jack Pine, Lodgepole Pine, and Eastern Larch. The most common deciduous trees are Paper Birch, Aspen, and Balsam Poplar. Compared to Tropical Forests, Boreal Forests are not nearly as diverse, but they make up for it just in sheer numbers of individual species."

His glasses kept slipping down on his nose as he looked alternately up at the delegates and down at his notes. He pushed his glasses back up on his nose. "It's home to the Tundra and West Arctic Caribou, some of the world's last remaining migrating herds. Lynx, Coyotes, Dall Sheep, Woverines, Grizzlys, and even Polar Bears – the southernmost population of Polar Bears den there, along James and Hudson Bays. Elk, Snowshoe Rabbit, Beaver, and Black

Bear are some other animals found throughout the forest.

"Probably the most significant inhabitants of the North American Boreal Forest are migratory birds. Each spring, up to 3 billion birds – 300 species – songbirds, waterfowl, shorebirds – migrate north to the forests below the Arctic Circle, and each fall, 5 billion birds – including 2 billion young- migrate south to wintering grounds in the United States, Mexico, Central America, and the Caribbean. The area between Alberta and the Northwest Territories is the last stronghold of the Whooping Crane.

"The North American Boreal Forest is also home to tens of thousands of First Nations Peoples. Elder Russel Penkay will tell you about his homeland, his People and what the Land means to him." Dr. Berendt looked to his right, to Elder Penkay, who acknowledged Dr. Berendt with a slow nod.

"Indigenous Peoples around the world," continued Dr. Berendt, "have called the wild and natural areas home and sacred grounds for tens of thousands of years. There are more than 476 million Indigenous peoples across the world, in more than 90 countries. They all have a special link – a special relationship – with the land, and their knowledge is crucial.

"What I've described to you is a very special place. A very important place. Aside from the support they offer for wildlife and their importance to indigenous peoples, Boreal Forests matter economically. They are the world's largest terrestrial carbon sink. They provide green forestry jobs, especially to people in small, isolated communities. Boreal Forests support an expanding eco-tourism industry. And they provide food and medicinal products to local communities, and also worldwide.

"Witness the most important medicinal discovery in modern times – the reason we are here today, because an anti-viral was discovered in a mushroom, growing in plain sight on the forest floor. It has the potential to prevent the deaths of hundreds of millions of children, maybe prevent the extinction of our species. There is no telling how many more life-saving chemicals there are out there, in the trees we casually burn down, or herbs we plow under, and give no thought to."

Dr. Berendt stopped, took another sip of water from his glass, and set it down. "Now that I've described to you just how important the Boreal Forest is to us, to the health and well-being of our children, to our economy, and to all the animals that live there, I'm

going to tell you that it is on life support, and we are losing it. It is warming twice as fast as the rest of the planet. The permafrost is thawing faster there than in the Arctic, and methane and carbon dioxide are being released at an increasing rate. Wildfires from lightning strikes and human carelessness are devastating the region, warming the soil and melting more permafrost. That's drying out the soil surface, making it susceptible to additional fires, in a vicious cycle. There is also the potential for more fires to move underground, where they will be difficult to extinguish.

"The northern border of the Boreal Forest is migrating northward while the southern border is dying out. The temperature in the region is changing so rapidly that the plants are unable to keep up, and so, the forest is slowly shrinking. The average temperature may rise four to five degrees Celsius by 2100 if we continue to pursue a business-as-usual lifestyle, shrinking the Boreal Forest by 25%. "Direct human impacts on the Boreal Forest are manifold."

Dr. Berendt then launched into an enumeration of the explicit assaults mankind has visited upon the northernmost forests – tar sands, oil and gas extraction – 222,000 wells and 441,000 km of pipeline as of 2011. Mining was one of the most egregious industries to invade the Boreal, polluting streams and lakes and leaving the soil poisoned for decades and longer. As of 2009, there were 108 metal, mineral, and coal mines in the Boreal, many occurring within one kilometer of a stream or river.

"The early history of the forestry industry is one of clear-cutting and roadbuilding, which has carved up and separated large tracts of land and displaced countless wild animals. Modern methods have been less destructive, but still have not caught up to modern thinking and a true understanding of what makes a healthy forest. Vast tracts of land have been tenured, giving logging companies almost carte blanche rights to remove trees as they see fit. Logging roads are the first step to destruction of the Boreal Biome and open the floodgates to development. Today, there are hundreds of thousands of kilometers of logging roads. In British Columbia alone, 10,000 kilometers of logging roads are added every year. The only thing that is protecting the North American Boreal Forest is its inaccessibility. Most of it is still roadless.

Dr. Berendt finally came to the crux of his presentation. "That is about to change. If we are to harvest the antiviral that the world so

desperately needs, we are going to have to penetrate the forest as we have never done before. The mushroom we need grows sporadically over more than a million square kilometers of uplands, marshes, bogs, and fens, as Dr. Harris has described to you. We are going to have to build more roads than we have ever built before, affecting more vegetation and wildlife than ever before. But, we are going to have to do it in a manner that does not destroy the forest because we may have to go in there more than once, perhaps many times. We are going to have to do it in a way that allows the forest to continue growing. We have to do it in a way that has only a minimal impact.

"Most importantly, we will have to address the climate crisis as we have never done before. It will take cooperation on a global scale."

Dr. Berendt shuffled through the papers he had before him on the table. He found among them a few sheets, stapled together as a group. The top sheet was entitled 'Proposed Plan for Harvesting Anti-viral in Northwest Territories, Canada: General Outline.' He held it up, shook it, and told the delegates that it contained a tentative proposal and plan for how they would harvest the mushrooms and extract the antiviral. Each delegate had a copy in the information packet they received prior to the meeting. It contained no details, only a general outline of how it could be accomplished, while adhering to best practices that would protect the forest and allow it to return to its pre-Pandemic state once a vaccine was developed and harvesting was no longer necessary.

Roads would have to be cut through the MycoArboeal EcoZone (the area where the mushroom was growing) at intervals, from one side to the other, south to north, and then again from west to east, breaking the EcoZone up into grids that could be serviced by individuals on foot, to limit compacting. Any traveling within the Association Area would be done using electric four-wheelers that could be charged at specific solar charging stations. Harvesting would be done manually within each grid, and the harvested mushrooms would be brought to designated pickup spots on the roads. Everything was designed to minimize damage to the ecosystem.

The roads themselves would be so-called corrugated roads, made from logs laid across the cleared roadway, then overlain with geotextile material to prevent dirt from filling in between the logs.

Road fill material would then cover the geotextile. If necessary, culverts would be included. This setup would allow the unimpeded free flow of water while operations were ongoing and could later be more easily removed when operations ceased. Roads would be cut no wider than absolutely necessary. Native materials would be used whenever possible. Damage, it was hoped, would be minimal and short-lived.

People harvesting the mushrooms would remain within their grids until the harvesting was completed. That meant living full-time in a camp environment for up to three months - a rather spartan existence, although some amenities would be provided. Such an operation, Dr. Berendt suggested, would require perhaps 500,000 people or more.

“That sounds like a lot of people, but that is just one person for every two square kilometers. “We believe the Plan will work. We submit it here to all of the members of the World Health Organization to look over, discuss with each other, and present to your respective governments for review, comments and suggestions.

“This plan cannot succeed without the full involvement of the Indigenous People who have, for thousands of years, lived in the area we propose to invade. They hear our cry for help and are offering to give it, but demand, and rightly so, that they be a part of the solution. We have prepared this plan in consultation with the Dene First Nations people of the Northwest Territories of Canada. We need their wisdom, experience, and advice to implement it. We must also respect their rights. Whatever we do must conform to the Free Prior and Informed Consent principles enshrined in the United Nations Declaration on the Rights of Indigenous Peoples.

“In conclusion, let me be perfectly clear. We cannot save the millions of children being born each year without saving the Boreal Forest. And to save the Boreal Forest, we must act decisively and immediately on the climate crisis. We must remember, though, that the Boreal Forest is not only home to a mushroom the world desperately needs, but it is also home to an Indigenous People, the Dene First Nations People. It is right for us to take every precaution to safeguard the forest for both of those reasons.”

Dr. Berendt then introduced the next speaker, Elder Russel Penkay. “Elder Penkay represents the Dene Nation. The Dene will be overseeing all harvesting operations in the EcoZone. Mr. Penkay, you have the floor.”

“Thank you, Dr. Berendt... and thank you to all the members of the United Nations World Health Organization for allowing me to speak to you today. My name is Russel Penkay. I am an Elder with the Dene First Nations of Denendeh, what is today called the Northwest Territories of Canada.”

Russel felt a little uncomfortable. He had spoken before to members of the Northwest Territories Legislative Assembly and the Parliament of Canada, but this was his first time speaking to a gathering of representatives from around the world. As he spoke of his ancestors, though, his unease drifted away.

“The Dene are a part of a larger family of Athapaskan People, who originated from the union of the very first humans to cross the land bridge between Asia and North America, and the earliest Inuit, who came later. The Athapaskan People, who then spread east across Alaska, into what is now British Columbia, the Yukon and Northwest Territories, Alberta, Saskatchewan, and Manitoba, came to be the Dene. We live as far north as the Mackenzie Delta in the Arctic Circle and almost to Hudson Bay in the east.

“We are related to other Athapaskan People who migrated all the way down the Pacific coastline and into what is now the southwest United States. Those People came to be known as the Navajo and Apache.”

As he recounted the story of his ancestors, of their origin and migrations, of their lineage and how they came to be, and their love for the land, Russel Penkay’s unease ebbed away, and he began to speak from the heart, with emotion. “The Dene have hunted, fished, lived, and called home the forests, rivers, and lakes of the Mackenzie Valley – what we call the Dehcho - for hundreds of generations. Because of the geography of the region, many groups were created during the passage of time, but they all remain part of the Dene Nation. We are now Denesoline, Tlicho, Deh Gah, Got’ine, K’shot’ine, and Dinjii Zhuh.

“The land where the White Birch Bolete grows is our home. It has always been our home... and we hope that it will remain so, far into the future. It is important to us. The Dene have always watched over the land, its plants and animals, its waters and air – all of its natural resources and beauty. We are one with all the other inhabitants of the land. We are the original inhabitants of the land, given to us by the Creator before any other Peoples arrived. We were placed here to support and protect our relatives, and our Laws

are our sacred Agreement to them – to all the creatures that we share the land with. We are of the land, and we are healthy only when the land is healthy, and we each will return to the land when our time comes. We have suffered many hardships, including pandemics and residential schools that almost erased our culture, our language, and our values. But we have prevailed because of our strength and resilience.

'Now, our home has become important to the rest of the world because of the White Birch Bolete and its anti-viral medicine... and we are concerned. We are concerned that our home will be destroyed by the rich nations of the world because they covet this medicine. We are concerned that the rich nations will take what they want once again... and once again leave the land in ruin as they have done so many times before, and in so many places.

"But they are beginning to understand that this time is different. They are learning that, in order to have a continuous supply of a life-giving anti-viral, they must take care of the forest and all its inhabitants. They must be mindful of its health. They must ensure its well-being. Their survival depends on them being good stewards, forming a relationship, and connecting with Mother Earth. They are coming to understand what we Indigenous Peoples all over the world have always known. Mother Earth must be protected if we are to continue to receive her bounty."

Russel now began to argue his case for why the Dene should play a major role - no, *they had the right* to play a major role, in the creation of a plan to harvest the mushroom, and then oversee its implementation. There was too much at stake to consider any other option.

"Denendeh is the sacred land of the Dene. The Dene are a distinct and independent Nation, with an ancient claim to the land, and we assert our right to self-determination. Our Leaders and Elders have effectively managed our people since the beginning and, with the cooperation of all community members, have made decisions that benefited all. We have a governing system that enables us to trade with other Nations, Dene and non-Dene, to negotiate agreements, and to resolve disputes. We sign agreements to create partnerships that will benefit us and protect our way of life.

"Those who do not understand our ways are unable to relate to our lands the way we do, do not speak for us, and cannot make

decisions that affect us without our participation. We honor all agreements we enter into and expect those who sign with us to do the same.

"We do support strong communities, healthy and life-sustaining lands, air, and waters, and are willing to work with all people in cooperation for the benefit of all. The Dene have negotiated many land use and management agreements with the Canadian government that protect large tracts of land throughout the Northwest Territories. In 2006, the Dehcho First Nation finalized a land use plan affecting 200,000 square kilometers of forested lands in the southwest corner of the Northwest Territories. In 2018, the Dehcho and the Federal Government established the 14,200 square kilometer Edehzhie Dehcho Protected Wildlife Area, and in 2019, the Lutsel K'e First Nation, cooperating with Parks Agency Canada and the Northwest Territory government, set aside and protected over 26,000 square kilometers of Boreal forest. The Sahtugot'ine First Nation protected 90,000 square kilometers of Great Bear Lake watershed by establishing the Tsa Tue Biosphere Reserve."

Russel's throat was getting dry from talking, and his voice was beginning to crack. He stopped for a moment to clear his throat. When that didn't work, he apologized to the delegates, went back to a table, filled a glass with water, took a long drink, set the glass back down, and walked back to the podium. He apologized again for the interruption and continued with his presentation.

"We have developed formal programs, using traditional as well as current Indigenous knowledge, coupled with western science, to train our people to be guardians, carrying on our ancient responsibility of caring for our lands. The Haida Gwaii, of the Queen Charlotte Islands, off the coast of British Columbia, started a stewardship program called the Haida Gwaii Watchman Program, which was funded by Parks Canada, to watch over and protect the islands. That program was copied by other First Nations and expanded into the Guardian Watchman Program. More than seventy stewardship programs exist now and are operating throughout Western Canada.

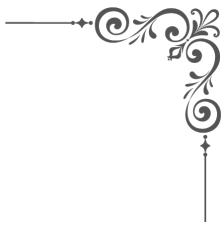
"We have proven that we have the expertise to watch over and protect our wild, natural lands. The program to harvest the White Birch Bolete that was just presented to you for review was developed by the UN Team of Specialists, with the knowledge and assistance of Dene leaders and Elders. Dr. Berendt described the

program somewhat simplistically because it was not necessary to go into detail at this time. The details have yet to be worked out. It will be a complex program to be sure, with a great many people involved - more than 500,000 - and many, many parts that must work together, and cooperatively. But it is a program that will work... and will protect the Boreal Forest at the same time. It will only work if preservation of the environment is the top priority."

Russel looked around the room at the delegates for nearly ten seconds without speaking. The delegates looked back, looked at each other, wondering, waiting. Then, Russel spoke with forcefulness and clarity. "The land where the mushroom grows is Dene land. Make no mistake. We have a responsibility to the land, and we take it seriously. We have taken care of it for tens of thousands of years, and we will not allow such a program to proceed without our final review and approval, and without the Dene playing a major role in its implementation. Thank you for your time."

Russel gathered his papers together and walked back to his seat, sat down, and folded his arms.

There was complete silence for a moment. The delegates had not expected such a forceful display of emotion, but many welcomed it. The delegates from Palau stood and began to clap, followed by the delegates from the Solomon Islands, Vanuatu, and Samoa, one by one, until they all were applauding, nodding to one another, acknowledging their shared pain of injustice all Indigenous Peoples have had to endure.



43

14 January 2029 Sunday
Canberra, Australia

Gary took a sip of his drink and set it down. “I think Mother Nature is punishing us for screwing up the planet. I don’t think she wants us to find a cure. She’s had enough of the human species, and she’s going to let us all die a long slow death... and then go extinct.”

“You know what,” Theresa complained, “I’m tired of hearing that this polysaccharide is ‘sooo... complex’, or that it’s one of the ‘*most complex’* they’ve ever seen. It’s ‘sooo... hard to figure out’. I mean, I don’t know that much about it, but is it really that hard, Gary? They do this stuff all the time, don’t they?”

“That’s exactly what I’m talking about, Theresa. Mother Nature doesn’t want us to figure it out. We are a failed experiment. Intelligence was wasted on us,” Gary replied.

“Funny, Gary,” Theresa said sarcastically. “Seriously, Gary, explain to me, please,” Theresa implored, “why this one is so hard to figure out. And keep it simple, so even I can understand it.”

“Maybe Gary’s right, Theresa, maybe we’re not meant to understand,” Gregg said. “We can’t be trusted with knowledge.”

Sara and Gary were having dinner with another couple, Theresa and Gregg Taylor. Theresa was a CPA. Gregg, a Nurse Anesthetist. Theresa worked for an accounting firm in Canberra, and Gregg, at a hospital nearby. Theresa was 7 months pregnant with a boy. It was their first.

“C’mon, Gary, why is it so hard this time?” Theresa persisted.

“Right, well...” Gary organized his thoughts for a moment. “First of all, polysaccharides are carbohydrates, OK? Big carbohydrates, but still, just carbohydrates. They’re used to store energy, provide structural support for cells, like cellulose, and for messaging inside cells. A lot of them are involved with the immune system, too. They’re made out of long chains of simple sugars joined together.

“Now, beta-glucans are a special type of polysaccharide. They’re found in cereal plants and fungi - specifically in the cell walls of mushrooms.”

“I’m following you so far, so keep going.”

Gary continued. “While most polysaccharides are just long linear chains of the same repeating sugars, or just a couple of different sugars, beta-glucans, like the one found in the White Birch Bolete, are made of a lot of different kinds of sugars, have a lot of side chains, and they’re twisted up into complicated three-dimensional forms. It’s this special three-dimensional shape that allows it to fit just right onto the surface structure of the virus, preventing it from getting into the cell.”

“Okay,” said Theresa, “so... I guess the shape is hard to figure out.”

“Exactly,” Gary answered. “You can’t really *see* the shape, because it's too small, even with a microscope. So, you have to infer the shape, using a lot of complicated tests. Even then, it’s tough to do for beta-glucans because of the wildly twisted shape. And the tests used to figure out the shape break it up into smaller pieces to make identification easier, but sometimes the chemicals used, or the heat applied in the tests, can change the shapes of the pieces, making it harder to identify them. If you don’t figure out every single part and get all the angles and twists exactly right, it won’t fit the virus, and it won’t work.

“Aaaahh... now I think I understand... I think. At least that helps. Thank you, Gary.”

“You’re welcome, Theresa.”

“Isn’t it great having a molecular virologist for a boyfriend?” Sara chimed in.

“I just can’t wait for them to get this anti-viral mushroom out to everybody. Kids are dying by the millions every day.” Theresa suddenly fell more serious, looked down at her very large abdomen, and rubbed her hand around it. Gregg, sitting to her left in the

booth, placed his left hand over hers. Theresa continued, “Sometimes I think this was a very bad mistake. Will he even make it to his third birthday?”

Gregg put his arm around Theresa and kissed her on the cheek. “We’ll make it through this.”

“Some of my clients had abortions, others are talking about having one.” Theresa looked at Sara. “They agonized over it, Sara. It was terrible. And they are women who love children. Some already have children – older ones. They’re scared to death. I see more and more women talking about waiting to have children. I mean, only five out of a hundred surviving to five years old.”

“I can’t imagine what they’re going through, what you’re going through, Theresa!” Sara reached across the table toward Theresa. Theresa reached back, and they held hands for a moment.

“I know a lot of other women who feel the same way.” Theresa paused and then looked straight at Sara. “Will this plan work, Sara? This plan, proposed by the WHO, to harvest the mushrooms in Canada? Do you think it’s possible?”

“I don’t know, Theresa. It has to. I know the Canadian government is not crazy about ceding that much control to the Dene. There might not be enough Dene to do the job. That would mean getting outside help, domestic or foreign. The Canadian Government doesn’t like the idea of half a million or more people, especially foreigners, running around the forest. Neither do the Dene. Control is going to be a nightmare.

“The Dene are the only ones who know how to keep the Boreal safe while harvesting the antiviral. The Government knows that. The Dene have the track record. If it makes you feel any better, I’ve gotten to know the Dene Elder who’ll probably oversee the whole thing. He’s a good man, and I think he’s very capable of making it a success.”

“The Dene have been taking care of things for ten thousand years, Gary said. “Hell, Indigenous Peoples all over the world have managed their surroundings just fine until White people showed up. An’ what did we do? We screwed up the earth in just two hundred years.”

“Security won’t be easy, either,” Sara said. “It’s going to take an army to keep nearly 2 million square kilometers secure.”

“That’s what the Canadian Prime Minister was hinting at,” Gregg added. “Bergeron suggested they might have to build a fence

around the area and use the army to patrol the perimeter. Use drones and satellites. Maybe electrify the fence. Electronic surveillance. The logistics of the whole operation are going to be enormous."

The servers arrived at the table and set the dinners out. The four friends thanked them, and the servers left.

"This looks good. I'm starving," Gregg said. He took a sip of his wine and then began cutting into his steak.

The conversation picked up where it had left off, as the two couples began eating their meals.

"Enormous, yes, but there is also going to be enormous public pressure to get it done. I don't think people are going to stand for political bickering and intransigence too much longer," Sara said. "There are already millions of people around the world protesting, screaming for the leaders of every country to compromise for once, to accomplish something. Babies are dying, economies are failing, businesses are closing, and unemployment is increasing worldwide. The global population has just about stopped growing. I mean, the cure is there. It can save millions of lives. It can stop this madness. We just have to work together for once."

"I think the *people* can work together. It's the freakin' so-called leaders who can't," Gary said, taking a bite of his steak, and washing it down with a cooler. "We need a People's Movement. Bypass the politicians altogether."

"There are still a lot of people who want to ignore it... who think it's some kind of hoax or conspiracy by the governments to control people," Greg interjected.

"I know, but come on," Gary said. "Have we lost all ability to think for ourselves? Has the world somehow gotten stupid?"

"Well, people thought Covid was a hoax, and now they're saying RSV is a hoax. Some fiendish plan by the opposition to kill children. There are all kinds of conspiracy theories circulating out there."

"Yeah, people who don't have kids. Selfish people, greedy people. Sick, rich people behind high fences and gated entrances who have the resources to protect their children. Who want to keep the status quo. They can even afford private, secure schools and hospitals." Gary shot back, annoyed, frustrated, and angry at the thought. "They feed this shit to people who are already disillusioned with our government, an' they believe it because they have no one they can trust. The rich keep pitting people against one

another to keep them from organizing, from taking them down."

Gregg swallowed a bite of food and wiped his mouth with his napkin. "Some schools are closing – kindergartens, lower grades. If this continues, populations are going to plummet.

"And that means not enough people to build things, to maintain infrastructure, to transport goods," Sara piped in. "That means economies collapse... and eventually society collapses."

"What is the matter with people?" Theresa could not understand how people could still refuse to find common ground. "What will it take?" She picked at her food, took a forkful of mashed potatoes, lifted it a few inches, then put it down.

"Not hungry, sweetie," Gregg asked.

"Not really, my stomach, an' all this shit going on isn't helping."

"But, there are some good signs," Sara said. People are talking. Meetings are taking place. People are starting to organize. It will happen. We have to believe that, Theresa. Don't lose hope."

"I'm trying, thanks, Sara. Is it true the WHO has abandoned the idea of growing the Tree/Mushroom Complex in greenhouses?"

"It's true," Sara replied, putting down the prawn she was about to consume. "Apparently, there is some other element missing from the Complex. When they grew the trees and the two fungi together in a greenhouse, no anti-viral was produced," Sara explained. They don't think it's another living organism, but they don't really know what. Might be some chemical in the soil... or something to do with the trees. Maybe their age. Dr. Harris said they won't know until next summer, when everything is growing again, and they can do more studies.

"That's a shame. We lose a whole year."

"And most virologists I've talked to are convinced that we can create a vaccine in ten or fifteen years. That's about the average, anyway." Gary added. "We were incredibly lucky with Covid. One year is just not going to happen. Not even five."

"Thanks for that, Gary," Sara said, annoyed that Gary was sabotaging her efforts to raise Theresa's spirits. "Theresa, we still do have the anti-viral... and they'll be getting it out next summer. Believe that."

"Do you ever get the feeling that nature is doing this on purpose?" Gregg asked.

"That's what I just said. Didn't I just say that? Mother Nature is punishing us." Gary laughed.

“Yeah, I’m serious, Gary,” Gregg said. “I mean, listen. A Pandemic is unleashed on the world that kills children, and mutates in such a way that we can’t develop a vaccine for it. When we do discover an anti-viral, it’s a natural anti-viral that happens to grow in only one small place in the world, in an area that’s remote and has been taken care of and watched over for eons by Indigenous People. Now, the forest seems able to produce just enough for all the children being born each year, and... the anti-viral can only be created naturally and can’t be created synthetically...”

“Not yet, anyway,” Gary popped in.

“Not yet.” Gregg acknowledged, then continued with his theory. “And, if all that’s not enough, four organisms have to work together in some sort of magical, but unfathomable symbiotic collaboration, to produce the anti-viral. And... the absence of any one of those four will prevent the anti-viral from being created, and we don’t have a clue what each one contributes to the equation. And here’s the kicker: the mushroom grows in a forest that is threatened with climate change, and it’s dying back. Cooperation from the entire world is necessary to act on climate change to save the forest and its mushroom.”

“And save humanity!”

“And save humanity. Doesn’t all that seem like it was planned?”

“A fiendish plan to force us to come together. That’s some theory,” Gary said. “Planned by what?”

“Gaia,” Sara suggested, as she put her fork down and sat back in her chair.

“Or maybe it’s just karma,” Gary said.”

“What is Gaia?” Theresa asked.

“Gaia?” Sara repeated. “Many Indigenous Peoples believe Earth is one giant self-regulating organism - Mother Earth - Gaia. Most scientists don’t believe the Earth is an organism but support the idea of the Earth being a System of systems that is in balance, one giant System of countless interconnected, self-regulating sub-systems composed of organisms and their environments.”

“And it's giving humanity one last chance to come together and save itself,” Gregg added.

All four sat in utter silence for a moment, looking at each other, considering the idea. Somehow it seemed plausible.

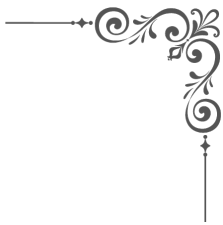
“That’s seriously deep shit, sweetie,” Theresa said.

They all laughed.

Theresa turned to Sara. “Speaking of climate, didn’t the WHO request an emergency meeting of the UNFCCC? And what about COP33?”

“Yes, COP33 was due to open in November, in India, but was postponed. I think it’s now set to open on February 1 in Bonn. I have to be there, on assignment. Should be interesting. The vote was unanimous in favor of calling an emergency meeting.”

“Let’s hope the urgency of the situation is enough to get the big players to move.” Gregg finished up his meal and washed it down with the last of his wine.



44

15 January 2029 Monday
Majuro, Marshall Islands

Francis Kaious, President of the Marshall Islands, made an early morning phone call to Apoliu Polomalu, the Prime Minister of Samoa. The subject of the call was the upcoming COP33, now set for the first two weeks of February, and how best to exert influence on the deliberations. President Kaious felt there would never be a better time to get an agreement that would benefit all small island states.

"It is unfortunate that it has come to this, Minister Polomalu, that we must use the tragic deaths of innocent children as leverage to achieve what is only our right to a just existence. We are slowly drowning." President Kaious began his argument for an alliance between AOSIS, the Alliance Of Small Island States, and the Assembly of First Nations, the AFN.

The Alliance of Small Island States, formed in 1990, includes thirty-nine member states, all low-lying coastal entities as well as small islands, that are most vulnerable to climate change and rising sea levels. The block, originally formed to enhance its influence on global issues that affect them, has managed to force more powerful nations to make commitments they might never have agreed to before.

The island states' outsized ability to influence decisions made by major world powers like China and the United States stems from

their unique strategic and geographic positions, especially those islands in the Pacific Ocean. The Indo-Pacific has half the world's population, contributes 60% of the global GDP, and more than half of the world's youth. Pacific islands are important militarily because they provide critical resupply and staging areas during wartime, and in peacetime, a huge market for goods and deep-sea mineral resources.

The Assembly of First Nations, the AFN, is the advocacy and political arm of the national organization of First Nations, uniting tribes all across Canada into one organization that represents First Nations interests. The AFN arose from the National Indian Brotherhood in 1982 out of a need for a stronger, more focused, political organization that could advocate for sovereignty, as well as all issues that affected the life and livelihood of Canada's Indigenous peoples.

To gain favor with small island states throughout the Pacific, countries in the region and around the world who seek power and position are courting governments of the Pacific islands just in case. Just in case there is a need. All seem to want to counter China's drive for regional control. India has contributed more than a billion dollars for climate adaptation. During Covid, India supplied enough vaccine for 100,000 vaccinations. India even helped Fiji modernize its sugar industry.

The United States is also competing against Chinese influence by keeping open maritime trade routes, especially in the contested South China Sea, and also by supporting Taiwan. The United States had an extensive military presence in the Pacific during and after World War II, and in an administrative capacity afterwards, until granting independence. Today, the United States has Compacts of Free Association with Palau, the Federated States of Micronesia, and the Republic of the Marshall Islands. However, the U.S. still has a significant military presence in the Pacific, with 375,000 personnel and 66 installations, although much diminished from what it used to be.

Although India, China, and the United States are the three major actors in the Indo-Pacific, they aren't the only ones competing for influence there. South Korea is providing loans and grants, as well as assisting in a transition to green economies. Pacific island nations, many of them small island states, have joined larger countries, like Australia and New Zealand, to form the 18-member

Pacific Island Forum to promote international cooperation on matters such as sustainable development, trade, and mutual security. European nations have also negotiated economic and trade agreements with Pacific island states.

All of this would seem to be a great deal for small island nations, but although there are many benefits to securing aid, trade, and security agreements, it is just not enough to save them from eventual destruction. They face an insurmountable danger of sinking beneath the waves of the Pacific Ocean while all those larger and considerably more wealthy nations watch. Those wealthy nations are doing what they need to, to keep a presence, but not any more than they have to, and certainly not enough to actually help. Self-interest is the primary driving motive.

Island Nations are willing to go just so far, though.

President Kaious continued with his argument. “All the member Small Island States did nothing to create this global climate crisis, and yet we have had to endure its consequences. There has never been a better time to secure an agreement to end our dependence on fossil fuels, and AOSIS has never been in a better position to exert real influence, to finally make a real difference in the decisions of the UNFCCC members.

“I agree, President Kaious,” Minister Polomalu said. “Even with the world coming undone, they still cannot seem to move away from unilateral and selfish interests. The world is still segregating itself into camps, pitted one against another in a battle for control. In the end, the greed and lust for power that have enveloped the world will spell the end to us all.

“It is now within our power to forge an alliance with the AFN and gain leverage to force commitments to adhere to the Paris Accords. The AFN is now in a superior position to control the natural anti-viral production, and they, like us, want justice for all Indigenous Peoples.

“So we must do everything in our power to intercede, to short-circuit the madness that seems to be leading us into the abyss. We must force them to turn from their petty bickering and confront the real problems facing us.

“In the past, we have been able to extract some economic help, trade, and security agreements, as long as they are not controversial and the major powers benefited the most, but when it comes to funding a Loss and Damage Fund and paying for anything that

forces them to admit they created this mess, they fall silent. We must force them into paying for the damages they have inflicted, not by appealing to their better nature, because that so far has failed, but by refusing them something they need. The combined strength of AOSIS and AFN may finally accomplish that."

The two leaders spoke for more than an hour. President Kaious promised to speak to the Chair of AOSIS, James deBrum, about initiating a meeting with the AFN representative at COP. Before ending their call, they both agreed to contact the other AOSIS heads of state to get them on board.

45

31 January 2029 Wednesday
COP33 The Conference of the Parties
United Nations Campus
Bonn, Germany

Sara's plane landed at Cologne-Bonn International Airport at 7:30 in the morning. It had been a grueling flight, and she was tired. Gary had dropped her off at Canberra Airport at 3 am the day before. She and her photographer, Dan Burns, departed Canberra at 4:30 am and landed in Cologne-Bonn nearly 38 hours later. The worst part of the trip was the 8-hour layover in Sydney.

After departing her flight, she and Dan rented a car and drove to the Bonn Marriott Hotel near the UN Campus in Bonn. Traffic was horrendous because of all the delegates, dignitaries, observers, press, security, and other interested parties descending on the city for COP33. The Conference of the Parties, originally scheduled to convene the previous November, had been hastily postponed by UN Secretary General Adanna Okoduwa, so that the WHO could present the latest information on the pandemic and the ongoing research to find a vaccine.

COP33 was being billed as the climate conference that would determine the fate of the world. Without any breakthrough yet in a synthetic vaccine for RSV, the world's only hope to prevent a calamitous population collapse was a climate agreement to end

fossil fuel extraction and save the Boreal Forests' anti-viral production. It was a tall order, and there was little hope that an agreement would be reached. The world's oil producers weren't ready to give up their stranglehold on the earth's energy supply and wealth yet, even in the face of nearly universal infant death and the chaos and societal instability it was fostering.

After Sara and Dan checked into separate rooms at the hotel, the desk clerk told Sara she had two messages in her box and handed them to her. Sara took them out of their envelopes and looked at them as the desk clerk finished up the reservations. Both were from Russel Penkay. Russel was the AFN representative at COP33, there as part of a larger coalition of Indigenous groups from around the world. Russel and Sara had kept in touch since her trip to the Northwest Territories in Canada. Russel was impressed with Sara's genuine interest in Dene history and culture, and her empathy for the Indigenous Peoples' plight for inclusion, for justice and equality.

Russel wanted to meet for dinner at the Parlament Restaurant. "Thank God Russel wants to wait for tonight," she thought. "I'm exhausted. I need to get some rest." She thanked the clerk and, with Dan, walked over to the elevators, the steward trailing behind with their luggage.

As they waited for the elevator to come back down, Sara looked around the lobby. The scene was chaotic. What seemed like hundreds of people filled the lobby, from all over the world, coming and going. Some were reporters like herself, with their own photographers. Others were diplomats and delegates in a wide variety of dress, there to represent their home countries. Indigenous peoples in colorful native costumes were standing about and sitting in the lounge area, engaged in lively conversations with people in business suits. Many attendees were dressed in short-sleeved shirts and faded jeans, carrying signs that read "END FOSSIL FUELS", "LOSS AND DAMAGE FUND," "CLIMATE JUSTICE," and "SAVE OUR CHILDREN." They were animated and noisy. Some were engaged in heated discussions, nose to nose.

The elevators were arriving and departing furiously, the doors opening and closing chaotically as one group spilled off and another pushed on. Sara, Dan, two stewards with luggage carriages, and three other people got on, and were immediately pushed to the back, as three more people got on. The elevator slowly made its way up to the fourth floor, stopping at each floor to pick up or

discharge passengers. When the door opened on her floor, Sara held on to the luggage carrier as the steward pushed it onto the floor. Dan quickly followed. Four people waiting to board immediately filled the void left in the elevator. The door closed behind them, and the elevator continued its climb to the top floor.

Sara and Dan followed the steward to their rooms, which faced each other across the hallway. The steward opened the doors for them and deposited their luggage inside. Dan asked Sara if she wanted to have lunch later. She said she was going to catch up on sleep and that later she had dinner plans. She told him that he would be on his own until the morning. Dan seemed pleased to have a little free time and disappeared behind his door. Sara tipped the steward for both of them and stepped inside, closing the door behind her. She looked around the room. It wasn't big, but it had everything she'd need for the next two weeks. She liked the view out the window. Below was the Rhine River, stretching from left to right. Boat traffic seemed light. She pulled the curtains closed, fell onto the bed, and was asleep within a minute.

When Sara awoke, it was 3:43 pm. She had wanted to call Gary before she lay down, but forgot. Too late to call him now. It was 1:43 am in Canberra. But, he'd want to know if she got there alright, so she called him, thinking he'd be asleep and she could leave him a voicemail.

"Hello," a sleepy voice said on the other end.

"Hi. I didn't mean to wake you. I fell asleep earlier and didn't get to call you. Sorry. Wanted to call you now and let you know I got here OK.

"Good. How was the flight?"

"Good. Long. Very long," Sara replied, emphasizing the 'very long.' Go back to sleep. I'll call you later. Love you."

"Love you, too. Be safe." Gary said, then hung up.

Sara sat on the edge of the bed for a minute, in silence, then got up, took a nice hot shower, and dressed. She called Russel, they exchanged greetings, and agreed to meet at 5 pm for dinner in the Parlament Restaurant, on the 17th floor. After hanging up, she pulled on a light jacket and went down to the lobby, then outside onto Dahlmanstrassa. She thought the weather was unusually mild for the end of January, in the mid 60s, but almost happy it was. She decided to go down to the river. The streets were crowded with visitors, and traffic was still heavy. She walked the short distance to

the Rhine and found a place to sit.

Sara looked out over the river and watched the boat traffic for a while, letting her mind drift, thinking about nothing in particular. People were going about their lives, delivering goods, going on cruises. What else were they supposed to do? She thought about the people operating the boats; were they giving the conference any thought as they passed by? Did they know there was a Climate Conference? Did they care, even if they knew? Did they know how bad things were going to get? Had they lost hope, given up? You couldn't see the dead and dying children. You couldn't see the fear and anger. You couldn't see the panic. You couldn't see any of that until you looked back toward the conference center. Then you could see it all. Then you could hear it all.

Sara got up from her seat and walked along the river for a while, then turned back toward the World Conference Center, taking in the sights along the way. She passed small groups of people in animated conversation, talking loudly. Some were wearing masks. Most were not. She, herself, had continued to wear one, but only when she was in close quarters with others. She would wear it inside the Conference Center.

The sun was sinking lower in the west. She looked at her watch. 4:35. "Better get back to the hotel," she thought. She turned right on one of the side streets, then right again on a small footpath and headed back in the direction of the Hotel.

Russel Penkay stood up from his table and waved to Sara as she entered the restaurant. She saw him as she neared the reservation desk, smiled, waved back, and walked toward him. When she got to the table, he greeted her and helped her with her jacket. They both sat down.

"It is good to see you again, Sara." Russel smiled.

"It's good to see you, too, Russel."

The waitress arrived at the table with a glass of water and handed Sara a menu.

"Would you like a drink?" Russel had a glass of water in front of him.

"No...no thank you, Russel." Sara took the menu and looked up at the waitress. "Just a water, please." The waitress smiled, thanked Sara, and said she would be right back with the drink.

“How’ve you been, Russel? It’s been a while. I think about you often. How’s your family?”

“Good. Everyone is good. My son, Edward, just had his second child. A girl this time. Her name is Nasnan.”

“Congratulations, Russel! I’m happy for you. And tell me, what does her name translate to?”

“Surrounded by a song.”

“What a beautiful name, Russel. I love it. And she is well?”

“Yes, she is very healthy and happy. Growing like a weed.”

I’m glad to hear that. And how is your wife… Sadzee? She must be missing you more these days, since you’ve become a celebrity and world traveler.”

“She is good.” Russel smiled at the ‘celebrity’ remark. “Thank you for asking. And you, Sara, how have you been? And how is Gary?”

“We’re good, too, Russel. Gary and I have moved in together.”

“Glad to hear it. Getting serious?”

“No, well…yes. More serious, I guess. We enjoy being together, and we’re both busy. Living together allows us to see each other more.”

The waitress returned with Sara’s water and asked if they were ready to order. Russel said they weren’t, and the waitress said she would give them a few more minutes, then left.

“Marriage in the near future?” Russel asked, as they both started looking through their menus.

“No, I mean, we haven’t really discussed marriage. We’re not in a rush. And the way things are going right now, it’s hard to really make plans for anything. Here we are at another COP, and we don’t seem to be much closer to solutions than we were three years ago.”

“We have the solutions, Sara, governments just won’t listen, or commit to them,” Russel replied. “Indigenous Peoples around the world have, time and time again, proposed solutions – but to no avail. We are frustrated… and saddened… and angered. We have the knowledge – we have thousands of years of knowledge – to protect the environment and conserve biodiversity.” Russel halted, realizing he was beginning to lecture. “I am sorry, Sara. I’m beginning to rant. It just makes me so angry… when the answers are right before our eyes, and we refuse to see them. Sorry, there I go again.”

The waitress was back. Sara and Russel gave her their orders, and she disappeared again.

“Don’t be sorry, Russel,” Sarah said. “You have every right to be angry. I’m angry, too, and frustrated. A lot of people are angry. We keep asking, ‘Why won’t our politicians see the danger and do the right thing?’ But the answer is simple - and we know it. Money and greed. Capitalism at its worst. The politicians do see the answer, as you said. They’re not stupid. They just reject it. Money blinds them all.” She then asked, “If we haven’t committed to phasing out fossil fuels yet, what do you think it will take?”

“I think we both know what it will really take, Sara. And that will be very unpleasant. Until we get to that point, though, we must continue to push for putting Indigenous Peoples at the negotiating table. Give them some say in the decisions made here. We are everywhere here – except at the negotiating table. There are nearly 3000 Indigenous representatives here, more than we’ve ever had at any COPs before, ten times the number we had three years ago, but we are still relegated to the sidelines. Developed countries discuss among themselves their proposed solutions to the climate crisis. They say our input is important, yet they don’t ask for our input.”

“Because they already know what you are going to say, Russel. They know what to do. They just don’t want you to have that kind of power - to be able to influence the decision. They want to keep control. Too much pressure from rich backers.”

Russel took a drink of water. “You are right, I know. There are many island nations and poor and developing nations here, but they cannot control the vote. The rich nations control the vote.”

“The vote should be a democratic one,” Sara suggested, “by all the Peoples of the world, including Indigenous Peoples, not by so-called national representatives, because they don’t represent the People anymore. They represent rich special interests.”

“That is why, without Indigenous influence in the decision-making process, nothing will get done. You are beginning to see where this may be headed, Sara.”

The server arrived with their dinners and set them down. He then withdrew.

“This looks good. At least we get to eat well while we are here. Have you spoken to Gary since you arrived?” Russel picked up his fork and began eating.

“Yes, I did. I called him just before I came here... what is that, Russel?” Sara asked, looking at the meal in front of Russel.

“Kasespatzle,” Russel said as he lifted his fork with what seemed

to be cheese, stretching back down to his plate. “I don’t eat meat, especially processed meat, when I go to a restaurant – unless it’s close to home and I can get caribou, deer, or rabbit.”

Sara felt embarrassed cutting off a piece of her chicken schnitzel. She stared at it for a second, then put it in her mouth.

“Don’t worry, Sara, I won’t hold it against you.” Russel smiled. “They don’t make it easy to get a good vegetarian meal.”

Sara smiled back. “That, they don’t. Thank you, Russel, but I don’t feel much better. Gary is much better at this than I am. He’s pretty much given up meat altogether. I keep trying, but I’m not having much luck.”

“Well, you’re trying. There’s a lot to be said for that.” Russel lifted another forkful to his mouth.

“Is that what you’re hoping to accomplish here over the next two weeks – admission to the negotiating table?” Sara asked as she pushed the rest of her chicken to the side of the plate.

“Yes, but I think it will be impossible to accomplish at this COP. It’s too late for that. We will push for a resolution of inclusion for COP34. If we can get that, I think there is a chance we can start to make meaningful changes. We have been demanding inclusion at all the COPs and other forums around the world. We want more than just recognition of our rights in some UN Declaration or in the Paris Agreements. We want actual participation in the decision-making process. We want voting rights.

“We believe that here at COP33, we will have the leverage to finally do that. There is a chance, as never before, for Indigenous people, for Small Island States, to finally have their voices heard.”

“Why is that?”

“Well, you weren’t far off when you said voting should be ‘by all the Peoples of the world’. This is the start of that idea. Indigenous peoples from around the world are joining forces, gaining strength, learning how to use the white man’s system against him – or better, to help him. We also have leverage now – the anti-viral is on our lands. The White man needs our help harvesting those mushrooms if he is to save his newborn.” Russel finished up his dinner and washed it down with a mouthful of water.

“I hope you’re right, Russel. I want you to be right. The world needs you to be right.” Sara looked at the older man. “I’m rooting for you, Russel, I truly am, but aren’t you afraid that the Canadian government is just going to push you aside and take over

operations? Take over your land?"

"That is possible. Let's hope it doesn't come to that."

The waitress stopped at the table and asked the two if they were interested in dessert. Russel looked at Sara.

"No, thank you. I'm full."

"Thank you, none for me either," Russel told the waitress, and asked for the check.

"Russel, I'm paying for the dinner. Please, let me. Please. NBC would be happy to pay for your dinner," Sara pleaded as she handed the waitress her credit card.

"Alright. Thank you, Sara."

"My pleasure, Russel. It was good seeing you again. I'm sure we'll see each other a lot more before the Conference ends – and I'll probably see you during the proceedings. I'd like to interview you, get your perspective as we get further in. The world needs to hear more from your point of view."

"I would like that."

Sara and Russel spoke for a few more minutes while they waited for the waitress to return with Sara's receipt. After that, they left together.

46

1 February 2029 Thursday
COP33 Conference of the Parties
Bonn, Germany

The first day of COP33 opened with an impassioned speech by the UN Climate Change Executive Secretary, meant to inspire all parties to live up to the commitments reached five years before during COP28. Although the agreements reached then were a disappointment for all who wanted a commitment to end fossil fuel use, it was the first time the parties had agreed in writing to transition away from fossil fuels. A Loss and Damage Fund was established, and pledges were made to fund it. In addition, the parties agreed to triple the number of renewable energy projects and double energy efficiency.

Those goals were never achieved. Neither were the goals of COPs 29, 30, 31, and 32. High expectations and good intentions were not enough to overcome powerful oil lobbies and weak principled government officials. In the United States, a populist, far-right Republican presidential candidate, Donald Trump, had been elected President in November 2024, his second, though non-consecutive, term as 'Leader of the Free World'. He quickly consolidated power and control over the legislative and judicial branches of government through intimidation and fear, and stripped away many constitutional rights of the country's citizens, establishing an authoritarian government.

Trump closed the US border to all non-essential traffic, and vilified, imprisoned, and deported immigrants of all nationalities, without regard to whether or not they had committed any crimes or even had any past criminal record. His pathological callousness, disrespect, lack of empathy, and total disregard for even basic decency toward others led to government-sanctioned kidnapping and torture of law-abiding immigrants, and the murders of protesting citizens by masked and ill-trained, brutish Department of Homeland Security and Immigration and Customs agents who acted more like roving mercenaries than constitutionally governed law officers. He vowed to prosecute and imprison all those who criticized or acted unpatriotically toward the United States. Trump rolled back clean energy initiatives, made impotent the Environmental Protection Agency, dismantled the Education Department and the National Center for Atmospheric Research, stepped up oil production offshore and in National Parks, and, in full disregard for international law, kidnapped and removed from office Nicolas Maduro, the President of Venezuela, to take control of the country's oil reserves. Trump pulled the US out of the Paris Climate Accords and transformed the government into a bickering, impotent quagmire that was unable to produce any meaningful legislation, much less climate progress.

His successor, David Wainright, carried on Trump's repressive rule, including the dismissal of the RSV pandemic as a hoax (reminiscent of Trump's rejection of Covid19 during his first term in 2022), calling it a subversive program conjured up by the "vile, despicable, and demented" Democrats.

Geopolitical tensions and armed conflicts hadn't come to an end just because a deadly virus was raging across the world. The Russian invasion of Ukraine, which began in 2022, had devolved into guerrilla warfare. China was still threatening to invade Taiwan, North Korea was still saber-rattling, chaos reigned in Haiti as armed gangs roamed the countryside, Gaza and Palestinian lands lay in ruin, as Israel continued its policy of genocide. In Africa, armed groups continued to roam the countryside, pillaging, raping, and murdering helpless people.

Although worldwide, advancements continued to be made in energy efficiency and in new renewable energy projects, they never reached the levels needed to make a difference. In fact, they did not replace fossil fuels as an energy source, but merely added to them

as energy demand increased. Emissions crept up, and temperatures soared to record levels in 2023 and again in 2024. Average global temperatures reached 1.5 ˚C above the twentieth-century average for the first time in 2024, a level the world promised in Paris in 2015, it would stay below.

The RSV Pandemic broke out in 2027, and climate change mitigation took a back seat, with little progress made over the next two and a half years.

The world re-focused on climate change for COP33 when, during 2028, it became clear that stopping advancing global temperatures was crucial to ending the Pandemic and the deaths of 95% of newborn children. Incredulous as it may seem, however, there was still opposition to phasing out fossil fuels. Instead, fossil fuel producers redoubled their efforts to have the world focus on emissions reduction rather than a fossil fuel phase-out.

The battle lines were drawn at COP33 by oil-producing interests and those opposed to its continued use. Speaker after speaker during opening day pleaded for unity. “The world is watching. We must come together for the sake of our children and all those infants yet to be born,” implored the King of Belgium. “The task before us is enormous. We need courage and conviction if we are to stop the willful destruction of our planet, bring a halt to this virus, and save our children. We cannot be bullied by big business and oil producers who have little interest in a just and equitable world,” demanded the Prime Minister of Samoa. “Only when we are willing to give up fossil fuels will we truly demonstrate our love for our children, our Earth, and all life,” declared a Native American Chief from the United States. The first day ended with an optimism that maybe current events had come together in a way that would finally put the world on a new and nobler path.

47

2 February 2029 Friday
COP33 Conference of the Parties
Bonn, Germany

Dr. Emma Harris was never interested in attending any of the COPs. Maybe in the beginning. Then, there was hope that the world really was interested in saving itself. But she soon became disillusioned when competing interests shut down any meaningful progress. So, she stopped going – and any talk by colleagues about the importance of the conferences and the need to attend brought only derision from Dr. Harris.

During the summer of 2028, Dr. Harris heard, again, the entreaties from colleagues, imploring her to go to COP33 in India. They told her that her voice was important, that she was an influential ecosystem specialist, and that her voice carried weight. Once again, Dr. Harris dismissed their pleas. She was busy with her research on the anti-viral fungus alliance, she said, and did not want to waste time on a lost cause. But they kept up their pressure, especially when the COP was rescheduled for February 2029, in Bonn, and the whole anti-viral project could be lost if no progress was made on climate change. Eventually, she was convinced she needed to go to the Conference and fight for the Boreal Forest.

She arrived in Bonn on the afternoon of the second day of the Conference of the Parties. Though it was warmer than usual, the weather was dreary – a light rain was falling - matching her

pessimistic mood, and the rain was expected to continue for the next two days. The taxi ride from the airport to the hotel did nothing to cheer her up, either. Traffic remained heavy and difficult to navigate. By the time she reached the Bonn Marriott, she needed a drink.

After checking in, Emma went straight to the Greatroom Bar in the Lobby. She sat down at the bar, hoping to wind down, and ordered a Manhattan. Two men, two stools down from her, were engaged in a lively conversation. Emma found it difficult to tune them out and stared at them for a second or two, then tried her best to ignore them. That proved impossible to do. One of the men was louder than the other and seemed to be dominating the exchange. Emma turned her head slightly, tuning in to the discussion.

"Listen, the world will never be able to do without oil and gas – coal maybe. Renewables can't replace all oil and gas. They're just too expensive. They'll never be able to compete. Oil and gas work twenty-four hours a day, seven days a week. Renewables can't do that. The wind doesn't blow twenty-four hours – the sun doesn't shine twenty-four hours. Oil and natural gas are reliable, affordable, abundant, and secure."

Emma had heard all those arguments before.

"But what about the emissions?" Asked the other man. "We can't keep burning oil and gas."

That's the point. We can. All we have to do is capture the emissions. There's good technology out there. Proven technology."

"You mean carbon capture and storage.

"Yeah. CCS. It's proven technology, like I said. We don't have to eliminate oil and gas, just capture the emissions and store it underground. That's what we're trying to tell people. Oil's not the problem, the emissions are. Get rid of emissions, and you get rid of the problem. Oil companies are a hundred percent for lower-carbon energy. The future is lower carbon energy."

Emma was already beginning to regret coming to the Conference. She had come to the bar to have a drink and unwind, but the misinformation being passed off as fact irritated her. The only reason renewables couldn't compete, she thought to herself, was the subsidies being showered on oil companies around the globe – subsidies to the tune of $7 trillion annually. Renewables received less than 10% of that astronomical figure. She slugged down the Manhattan and asked for another. "Bull shit," she

muttered to herself. “CCS isn’t proven. It’s too expensive, and it’s dangerous.”

The louder of the two men, hearing Emma, stopped talking, looked over in Emma’s direction for a second, then continued, “Listen, if the world did away with fossil fuels today, economies would collapse. There’d be chaos. There’d be massive job losses. Independence would be undermined. A phaseout of coal would cause a voter backlash, might even lead to the rise of dictators... in fact, doing away with fossil fuels would put all free countries in the world at risk of becoming dictatorships.”

“What about all the subsidies the oil companies are paid?” The other man asked.

“What about them?

“Oil companies make billions in profits and still get money from governments.”

“It costs oil companies billions to find new oil reserves, to extract it, and develop it. You know why the price of gasoline is so low? Because of those subsidies. Gasoline would be through the roof if the government didn’t help. The public – you and me – we’re the ones who profit from the subsidies, not the oil companies.

“That is just a load of crap,” Emma finally said, looking straight ahead at the mirror behind the bar. Both men looked toward her.

“Excuse me?” asked the louder of the two men. “Are you talking to us?”

Emma turned toward the two men and, looking at the louder of the two, said, “You know that isn’t true.” She slipped off her stool and walked over to the two men. “The U.S. alone pays oil companies $20 billion a year so they can keep pumping money into the political coffers of U.S. senators and representatives to keep them in office... so they can keep the oil companies in business making record profits, and their top executives are in the top one percent of the world’s wealthiest people. The only people that profit are the oil executives.”

Emma turned to the quieter of the two men – the apparent listener. “What this man is not telling you is that environmental costs from drilling are piling up because of the extraction of fossil fuels. Five trillion dollars annually in environmental damages are not being addressed. A family in India is having to endure 122 degree temperature days, so you can pay $4 a gallon for gas, and some oil exec is making $2 million in salary. Island nations like

Tuvalu, Kiribati, and the Marshall Islands are experiencing regular flooding even on sunny days, with saltwater inundating their agricultural fields and poisoning their drinking water. Does that sound fair to you?"

Before anyone could say something, Emma continued, "Consumers are not benefiting from the low oil prices because those costs are going to have to be paid for by all of us. It's like a balloon mortgage. You know what a balloon mortgage is?" Emma looked at the listener and waited a moment for an answer. The man looked back, a blank stare on his face.

"It's a mortgage where you pay low initial payments for a period of time, then bam, all of a sudden, the balance comes due, and you have to pay it all at once, or you lose your home. That's what's happening with oil. We're about to lose our home. We're paying low prices now, but the balance is coming due... and soon."

"But wouldn't fuel prices go up if subsidies were eliminated? How could we afford that?"

"Prices will go up. They should," Emma replied. "That's why we need a Fee and Dividend program. A fee is charged to producers according to the amount of carbon they emit. The fee increases as the amount of carbon produced increases. The money collected is paid directly to the citizens of a country - 100% - everybody gets the same amount. The dividend would be more than enough to make up for the increase in price for gasoline. And the government can put the subsidies into renewables.

"And as for CCS – Carbon Capture and Storage – it's not proven technology, not by a long shot, like this man would have you believe," Emma nodded toward the other man. "There are pilot programs running now in the US, but they capture less than one half of one percent of U.S. current emissions."

"But there are more than a hundred and twenty CCS projects in construction right now," the louder man interjected.

"And do you know how much CO2 those 120 projects will remove? Three per cent. Just three percent of current U.S. emissions."

Emma stared at the louder man – a long stare that dared him to respond. Then, enunciating clearly and slowly, she said, "What we need is sustainable energy and sustainable energy storage systems in a sustainable, steady state society." Seeing no immediate response, she began to press her argument, but ceased abruptly

when she heard someone call out her name from behind.

"Emma Harris!"

Emma turned to see a tall, lanky, gray-haired man standing a few feet behind her, next to the bar. He smiled broadly, his eyes wide with surprise. He pushed his eyeglasses back up onto the bridge of his nose, and opened his arms wide.

"Am I surprised to see you here."

Professor James Abbett, Associate Professor of Botany at the University of Reading, in the United Kingdom, was fifty-two years old. Originally a researcher in climate science at Reading, he discovered the fascinating world of plants and, while teaching classes in Earth Systems Science, he completed a PhD in Evolutionary Plant Biology. His fields of expertise were the evolutionary responses of plants to climate change, plant phylogeny, and fungal taxonomy. He came to know Emma when they were members of the Catalogue of Life Global Team, a consortium of hundreds of scientists around the world responsible for cataloging the enormous number of life forms on the planet. Emma and James had collaborated over the years on a number of projects, the most recent on the biodiversity of fungi in Boreal forests in Canada, Russia, Norway, and Sweden. Though they hadn't seen each other in three years, they had consulted on Emma's research into the White Birch Bolete and its anti-viral properties.

"James," Emma said, equally surprised, happy to see the familiar face of an old colleague. She walked over to him, and the two hugged.

"I thought I would save that poor gentleman from a thoroughly humiliating verbal thrashing." James joked. "Never thought I would see you at another one of these COPs, Emma. It's good that you came... it's good to see you again. How have you been? Come, let's sit." James motioned for Emma to sit at a nearby table. "There's someone else here who would love to see you again."

As Emma and James approached the table, the woman sitting there looked up from her phone. Her face lit up as she recognized Emma. She stood up from her chair and met Emma three-quarters of the way there, throwing her arms around her and hugging her with genuine excitement. "Emma, how wonderful to see you. I didn't think you would be here."

"Amisha, it's good to see you too. There were just too many good people with too many good reasons pestering me to attend,

that I could no longer come up with an acceptable reason not to," Emma joked. "Amisha, the last time I saw you, you were just pregnant with your second child.

"Yes, yes, I know. I was a graduate student then. Too much time has passed. Five years, I think." Amisha's mood changed noticeably. "I lost my boy two years ago, to RSV."

Emma hugged Amisha. "I'm sooo sorry to hear that, Amisha. Truly sorry. It's such a horrific disease, one that we must conquer."

James pulled a chair out for Emma. "Sit, sit, Emma." The three sat down. James waved to a waitress, gesturing for her to come to the table.

"Thank you, Emma," Amisha said as she took a sip of her drink. "It was difficult. Especially hard on my husband. He was so happy to have a son, you know, to do all those things a father does with a son... to pass on his name... Had we known what was coming three years later..."

"I know. But no one knew then what was going to happen. Three years ago, the world was a much different place, " Emma paused, not knowing whether to ask. "And your daughter?" she asked cautiously.

"Oh, she is good. Netra is seven now. Healthy. She is in school and doing well."

"I'm glad to hear that." Emma felt relieved. "That's good."

The waitress arrived and took Emma's order for another Manhattan.

48

6 February 2029 Tuesday
COP33 Conference of the Parties
Bonn, Germany

At first light a crowd of protesters identifying themselves as members of Extinction Rebellion gathered outside. They numbered about 200. The rain had ended the previous night and the weather had turned colder.

The protesters were bundled up in coats, mittens, beanies, gloves, and scarves, shouting and chanting, carrying placards. “ONE EARTH – ONE CHANCE”, “WAKE UP, THERE IS NO PLAN B”, and “THE CLIMATE IS CHANGING – WHY AREN’T WE?” They walked back and forth on the sidewalk in front of the World Conference Center, as well as across the street. Aside from being loud, they seemed organized and orderly.

At 10 am, another, larger group of protesters, also identifying as Extinction Rebellion, perhaps 300 in number, appeared. They seem to have come from the Bonn Marriott Hotel, also carrying the same kinds of pro-climate signs. This group was very loud and boisterous. They joined hands and marched out onto the Karl-Carstens Strasse in front of the Hotel and walked the short distance toward the World Conference Center, blocking all traffic. Car horns started blaring, and drivers started shouting and cursing. The protesters sat down in the roadway, from one side to the other, locking their arms together, and all traffic came to a halt.

Some protesters, however, angered by drivers, began beating on the cars with their signs, causing a significant amount of damage.

Soon, the police arrived. They got out of their cars and trucks, shouted for the protesters to get up and disperse, and tried to arrest those causing the damage to vehicles. The protesters fought back using pepper spray and threw rotten fruit at both the police and the cars. News reporters flocked to the scene, recording the confrontation. Pedestrians by the score pulled out their phones, also recording the mounting chaos.

The police called for reinforcements and, with the added manpower and more aggressive action, gained control of the confrontation, finally breaking the bonds of those sitting in the roadway, and those causing property damage, and carried them off. One by one, the officers dragged the protesters from the street, arrested them, and loaded them into police cars and transport vehicles, taking them to the nearest precinct for holding and processing. By noon, the street had been cleared, the reporters went back inside the Conference Center, and traffic resumed.



It was late afternoon before Sara and Dan managed to find a relatively quiet corner at the World Conference Center to conduct the interview. Earlier in the day, the Organization of African, Caribbean and Pacific States, the Alliance of Small Island States (AOSIS), and the Assembly of First Nations (AFN) gave a joint press conference, announcing they had formed a coalition to further pressure Developed Nations to phase out fossil fuels and reaffirm their commitment to the Paris Agreement. They also demanded recognition as a negotiating party.

Sara wanted to get more perspective from James deBrum, Chair of AOSIS, and Russel Penkay, Dene National and AFN representative, on the coalition's goals. She also hoped to get an assessment of the proceedings thus far from two earth systems scientists, Dr. Emma Harris and Dr. James Abbett.

Dan had gathered five chairs together and set them out in a semi-circle. Sara sat opposite them and invited her guests to fill the others. Dan stepped back, grabbed his camera, and hoisted it onto his right shoulder. He signaled to Sara that he was ready to start filming.

"Thank you all for coming," Sara said as she welcomed and

introduced the guests. The interview was being filmed ahead of time and would be aired in part the next morning and in full on the evening news the following evening.

“Today, the nations of Africa joined with the Alliance of Small Island States and the Assembly of First Nations,” Sara said as she looked at the camera, “in an unprecedented move to put additional pressure on Developed Nations to re-commit to the Agreement they made at the Paris Climate Conference in 2015, at COP21. That Agreement, signed by 196 countries, was a legally binding document that committed the parties to hold the increase in Earth’s temperature to 2 degrees Celcius, or less, above pre-industrial levels, by the year 2100, and do all in their power to limit the increase to 1.5 degrees.”

Sara turned first to James DeBrum. “Dr. deBrum, AOSIS pressed Developed Nations to re-commit to the 1.5 degree limit as early as 2023 without success. The global average temperature increase broke through the 1.5 degree ceiling first in 2023 and again in 2024. Do you believe this new coalition will succeed where they individually failed during the past four years?”

James deBrum was quick to reply. “Ms. Campbell, I believe we must succeed this time because, if we are not able to persuade the nations of the world, in the face of the current crisis, to phase out fossil fuels, and immediately, we are facing the collapse of civilization as we know it. Ninety-five percent of newborns are now succumbing to a virus we are unable to stop. Our only hope is an anti-viral that grows in a precious forest that is threatened by a changing climate. If we fail to save that forest, we are all doomed. There is no vaccine – no Plan B.”

“But, why do you think that the coalition will succeed where the parties separately haven’t?” Sara pressed deBrum.

“Because, together, we have much more leverage than we do individually,” deBrum responded. “Transition to a clean energy world means the need to mine minerals like lithium, copper, cobalt, and nickel. Much of it lay below the surface of Indigenous lands. Africa has one-fifth of all global mineral reserves. Pacific island countries provide strategic advantages to the superpowers – military bases, refueling depots, radar and missile stations, deep sea minerals. The United States has a missile base on Kwajalein in the Marshall Islands.”

deBrum continued, “It is no secret that the major colonial

powers, the Europeans at first, followed by the Americans, took what they wanted, in Africa, Asia, the Philippines and Indonesia, Cuba, Hawaii, and most of the small islands throughout the South Pacific Ocean. They thought it their divine right. But, in today's world, our rights, the rights of all Indigenous Peoples, are recognized internationally. We are sovereign nations in control of our own harbors and airfields, and figure importantly in the transport of goods and communication around the world."

Sara turned next to Russel Penkay. "Elder Penkay, you represent the AFN and the Dene Nation in Canada. The anti-viral-fungal complex is located in your homeland. You, as well as the world, have a lot at stake there. What leverage do you feel your coalition has that can persuade nations like Canada, the United States, Russia, Saudi Arabia, and Iran to phase out fossil fuels?

"Sara, Ms. Campbell, as Dr. deBrum has suggested, Indigenous People control critical resources that the world needs. Island nations have deep-sea harbors and minerals, and the Dene Nation has the anti-viral complex."

"Does that mean you would refuse to allow harvesting of the anti-viral on Dene lands? Aren't you concerned that, if there is no phaseout commitment, the Canadian government might just take over by force?" Sara knew she might be opening a can of worms here, but she wanted to give Russel a chance to present his case to the world.

"We are hoping it does not come to that. It would be unfortunate for all. But we know the land, and we know what Mother Earth wants in return for giving us this anti-viral. Mother Earth wants our respect; it wants us to recognize that all life has rights and needs to be protected, and if we do not do so She will take the anti-viral from us. She will stop supporting us.

"Do you not see? Russel pressed. "Mother Earth is offering us a chance to save ourselves. This may be our last chance. We are on the brink of exterminating ourselves and seem blind to it. The Earth will survive without us, in a different form, no doubt, but She will live on. We will not. If we do not heed Mother Earth's warning to us – that all Life is precious, that all Life is interconnected, and interdependent, that all Life is worth saving, we will become extinct. And the Earth will not shed a tear. We are bound to protect the Earth. It is our covenant. And we take our obligation seriously. All of Earth's creatures enjoy the same rights as we do. We are

prepared to do whatever is necessary to protect Mother Earth."

Does that include refusing access to the mushroom anti-viral?" Sara pointedly asked.

"Yes, if that is what it takes."

It was a startling statement in its simplicity, almost a declaration of war that surprised Sara (and, no doubt, the rest of the world) for its clarity.

Sara then turned to Emma Harris. 'Dr. Harris, you are aware, I'm sure, of the demonstrations and protests going on just outside the Conference Center.

Dr. Harris nodded in assent.

Sara continued, giving Emma the opportunity to clarify the position of Scientists for Extinction Rebellion. "This morning, protesters stopped all traffic from moving past the Conference Center by locking arms together – essentially forming a human chain – across the roadway. Others attacked the police and caused a great deal of property damage to vehicles caught up in the protest. Many in the crowd were carrying signs identifying themselves as belonging to the environmental group Extinction Rebellion. You belong to Scientists for Extinction Rebellion, a group of scientists worldwide that supports the principles put forth by XR, that is, non-violent civil disobedience to compel governments to act on climate change and the destruction of the natural world. What do you say to people who denounce the kind of actions taken this morning by the Extinction Rebellion demonstrators – that is, the pepper spraying of police and the damage to cars and trucks? How does that advance the quest for meaningful action on climate change?"

"Thank you, Sara, for bringing up XR. I *am* a member of Scientists for XR. I'm just one of more than 1600 scientists worldwide who have come to the realization - sadly, I might add – that the conventional means of influencing our leaders – writing letters, papers and emails, giving speeches, voting, testifying before parliaments and signing petitions, just isn't working. We, as scientists, have been failing humanity by our inability to convey the gravity of the climate crisis. Now, we are failing our children. Non-violent protests and demonstrations seem to be the only way to let our governments know that we are in danger, that we are angry at their indifference to our plight, and that they need to act immediately to mitigate the worst effects of climate disruption – and now that has come to include the end of viable births and thus,

a sustainable population."

Dr. Harris continued. "But, let me answer your question. Extinction Rebellion was not involved and did not participate in the disruption of traffic this morning, or cause damage to vehicles, or attack police officers. There were other groups – groups that came later – who were responsible. I support XR and its principles: creating a just world for our descendants, creating a healthy, resilient culture, breaking down class barriers that prevent meaningful discussions on an equal level, and especially non-violent action. I understand the frustration, their frustration, but do not condone violence. Violence is counter-productive and prevents meaningful talk."

Sara, satisfied she allowed Dr. Harris to set the record straight on XR's involvement - or lack of involvement - in the protest, went on to the next topic. "It's well known that you are not a big fan of these COPs. What made you attend this one?

"The short version is, I was threatened with expulsion from the Friday Morning Bio-Philosophical Society meetings, and I really loved the donuts and bagels."

All laughed, welcoming a little levity. They were a little surprised it came from Dr. Harris, though. It was a side of her not very many were aware of.

Dr. Harris then turned serious. "It's true that I am not optimistic about the potential for great change through the COPs. In my opinion, they have failed to get governments to act. But in its defence, the Conference of the Parties, by its very nature, is a democratic organization – very conservative. It has to be. One hundred ninety-eight countries have to work together to come up with a consensus that all can agree on. Unfortunately, that guarantees a watered-down and almost toothless – and meaningless, agreement, however. The text can't offend anyone or there will be no agreement."

"But, isn't that better than no participation at all?" Sara asked. "Isn't a small amount of progress each year better than no progress at all? Every country going its own way?" Sara was allowing Dr. Harris to hammer home just how desperate the situation was, and how swift the response needed to be.

"It is, Sara, it is. But it is too late for small incremental changes. What we need is a paradigm shift in our way of thinking, in the way we live, and there just isn't any time left to make small steps

anymore. We are at the end of the line. The world has to act decisively, radically, and drastically – and we have to do it now. It's true, the COPs are the only thing we have, the only forum available to disseminate information, for scientists to share research and discuss findings, for the world to come up with a plan to save itself. And that's why I decided to come this year. To try to convince the politicians that we are out of time.

"We are in the midst of a Pandemic that is effectively condemning the human population to extinction. Our only hope is an anti-viral produced by a tree-fungi complex, and that is threatened by the relentless rise in temperature due to a climate crisis."

"Dr. Harris, you were responsible for much of the research done initially on the fungal antiviral, for revealing the complex relationship between fungi and trees that made the antiviral possible. Do you think that we are in real danger of losing it?"

Emma thought for a moment. "The Boreal Forest is probably in more danger of disappearing from the effects of climate change than any other ecosystem in the world, save for maybe the Amazon Rainforest. The Boreal Forest is the largest relatively intact biome on Earth. Bigger than the Congo and Amazon. But it's also warming faster than any other area on earth – twice as fast, in fact.

"We know very little about how this complex relationship between the fungi and trees works. We know they must all function as a unit to produce the anti-viral. Take away any one member of the complex, and it ceases to produce the anti-viral. We know that the chemical reactions that take place to produce the anti-viral are temperature sensitive, as are all catalyst-regulated reactions. They probably take place within a narrow range. Change the temperature too much, and the reaction ceases – the antiviral ceases to be produced."

"Is there any data to suggest we are approaching that limit?" Sara asked. "Have you carried out any tests to determine the upper and lower temperature limits of the reaction?"

"It's been less than a year since we discovered this Complex even existed. Laboratories around the world are working to understand how the Complex works, and why it produces the anti-viral, but we still know next to nothing about the process. And logistically, it's difficult to carry out experiments because of the scale needed. We know there is some other element necessary for

anti-viral production, and we don't yet know what that other element is - another organism, although we don't think it's that, some mineral or organic compound... or tree maturity. We have some ideas but we won't be able to test them until this coming summer.

"If it is age-related, for instance, and we want to duplicate it, that means we must have a large enough enclosure to grow these trees, along with their associated fungi, under controlled conditions.

"So we are a long way from growing the Complex under controlled conditions – and a long way from understanding the precise conditions which the participants need to produce the antiviral."

Dr. Harris leaned forward in her seat to make a point. "Look, the environmental conditions of the Boreal Forest Biome have been relatively stable for at least the last ten to twelve thousand years – since the end of the last ice age. We know the average temperature of the Earth hasn't varied more than half a degree above or below the average over that entire time. Over the past seventy five years, the departure of the temperature from the average in the Arctic has been nearly three degrees Celsius. Three degrees! The trees are beginning to show the effects of that stress.

"The environmental conditions that govern the southern and northern margins of the Boreal Forest are moving north ten times faster than the trees can migrate. The forests are beginning to turn brown. Black Spruce, along with White Spruce, is beginning to die out in its southern range and isn't keeping up with the advance of the northern range. This has to be affecting its ability to participate in the creation of the anti-viral. My guess is that we are at the upper limit, if we haven't already passed it. It may already be too late. It's still winter in the northern hemisphere. We won't know anything until summer, when the snow is gone, the birches leaf out, and the fungi begin to grow and produce mushrooms."

"That is a pretty sobering assessment of the situation." Sara was a bit shaken, but didn't show it. "Dr. Abbett, do you agree with that assessment? Could we be too late?"

"Dr. Harris is right. We don't know much about how the Complex works. These four organisms have formed this symbiotic relationship over perhaps tens of thousands of years, under a very specific set of environmental conditions, and because of one or more specific stressors acting on them, they produced a chemical to

counteract the stressor – or stressors. We don't know why the chemical was originally created. Or what the stressors were. And now conditions are changing, due to a changing climate. They could possibly lose their ability to produce this antiviral, or they may not have a need for it anymore. The increasing temperature may affect their ability to produce the chemical, or the increasing temperature may eliminate the stressor. We have a very narrow window of time in which to act, and that window is nearly closed."

Still addressing Dr. Abbett, Sara asked, "How important do you feel a phaseout of fossil fuel use to the Boreal Forest is, and the anti-viral Complex?" Sara wanted to reinforce the climate assessment Dr. Harris just gave.

"Again, I agree with Dr. Harris' assessment of the situation in the Arctic. So do most climate scientists. Most aren't as vocal as she, but privately, we are all terrified. The permafrost is melting at an alarming rate, releasing carbon dioxide...

"Could you briefly explain what permafrost is, for our viewers?"

"Sure. Technically, permafrost is ground – soil, sediment, rock, sand - that remains at or below freezing for at least two years. It can range in thickness from one meter – just over three feet – to more than fifteen hundred meters – about forty-nine hundred feet. Permafrost dynamics are very complicated, first because most of it is hidden below our feet, and difficult to observe and measure, and, second, because it covers such a huge area – some of it is underwater on the seabed - and it's not uniform from region to region."

"And what is happening to it, and why is that important?" Sara asked.

"We know that we are now experiencing a degree of melting we didn't expect to see until 2090. That's frightening! We are also seeing more frequent fires both above and below ground in the Arctic, releasing CO2 and methane. We know that at some point, the melt will become self-sustaining and irreversible. The scary part is that we really don't know where that point is. We are in uncharted territory. We may have already crossed that line, or we may be very near. The last time CO2 levels were this high was 3 million years ago – and the temperature then was two to three degrees warmer. Humans had only 2 million years before that, separated from chimpanzees. Needless to say, a phaseout is crucial to saving the Boreal Forest and, ultimately, the anti-viral.

“And, by extension - us,” Sara added.

“Yes, and us,” Dr. Abbett agreed. “Look, there’s a lot of talk here at the proceedings from the fossil fuel industry about the phaseout of fossil fuel emissions. The fossil fuel industry would have us believe that the problem is not burning fossil fuels, but the accumulation of CO2 in the atmosphere. That’s just splitting hairs. Burning fossil fuels produces emissions that contain CO2. Why not just eliminate the fossil fuels?”

“But, if we could just use technology available today, we could capture emissions and store it underground. Problem solved. We could go on burning fossil fuels till we run out.” Sara was playing Devil’s Advocate.

“It’s not as simple as that, Dr. Abbett replied. “First of all, no CCS projects have been scaled up to the size necessary to make a difference. Second, all current CCS projects are underperforming. The technology is not ready. To be effective, the plants would have to be sustainable and protect the environment and human health long-term. All CCS is not equal. Projects would have to be tailor-made for each industry and situation. Retrofitting would be expensive. We must have suitable reservoirs to store the carbon, and storage can cause seismic events. Pipelines can leak, and we’ll need thousands of miles of pipelines to move the carbon to those reservoirs.”

Sara looked over to Dr. Harris, who seemed anxious to add something.

“Dr. Harris?”

“There are a lot of very wealthy people in this world who have a stake in maintaining the status quo, and their money and influence exert a great deal of pressure on political elites to keep the current capitalist economic model going - for as long as possible. They’re not worried about the bottom ninety-five percent of humanity. And they’re not worried about the children of the bottom ninety-five percent. That may sound harsh, but it’s the truth... and it needs to be said. We don’t have time left to worry about being polite. And I’m not saying anything that no one else has said, at least in private.

“They foolishly think they can isolate themselves, shield themselves, from what’s coming,” Dr. Harris pressed her warning. “The top 1% may be able to postpone the collapse of capitalism, to hold out longer than the rest of us, but the system will inevitably fall apart. Capitalism will end, and with it, the wealthy elites, and

civilization as we know it. Humanity will have had a brief shining moment of greatness, then will collapse into anonymity – maybe never again to advance. Humans will return to their status as just another species inhabiting this planet, fighting for survival. Their brief dominance as the Earth's most powerful species will end."

49

9 February 2029 Friday
COP33 Conference of the Parties
Bonn, Germany

Gary's alarm was just going off when his phone rang.

"Did I wake you?" Sara asked.

"No...no, sweety. I was just getting up. What time is it there?"

"Just after midnight."

"You can call me anytime. I miss you."

"I miss you, too. I'll be home soon. Just another week to go. Wish you could've come with me, but I know you're slammed with work."

"So, what did you do today? The Conference was shut down for a day of rest, right? Something fun, I hope."

"Three of us got together and did a little sightseeing of the city. The weather was kind of pleasant. The sun was out. That was good."

"Yeah, I see it's been raining on and off since the proceedings began. Glad the weather cooperated today."

"Did you know that Bonn has a history that goes back 2000 years?"

"No, I did not know that. Two thousand years, huh?"

"Yes, and the first settlements in the area started about 50,000 years ago. There's archaeological evidence that Neanderthals occupied the area 450,000 years ago. They've actually found

Neanderthal skeletons, and hand axes, and even art objects. Julius Caesar conquered the area in 50 b.c and the Romans set up a garrison here."

"Yeah, the Romans were there for a few hundred years, I think, until they were eventually kicked out. Where did you find all this out?"

"At the Rhineland Museum... which just happens to be the oldest museum in Germany."

"How about that. I love you!"

"I love you too."

"Tell me some more about your day."

"This morning we went to the Market Square and Town Hall – well, it used to be the town hall, it's been moved since. The Town Hall overlooks the Market Square. It's probably the most recognized building in the area. They say the architecture is Rococo style – I don't know what that is..."

"Me neither."

"Anyway, lots of open stalls where people sell handcrafted jewelry and knick-knacks, and such. Restaurants and little cafes and bakeries – oh," Sara was excited. "There was this café, the Bonn Coffee House, I think it's called Café Muller-Langhardt," Sara pronounced the name slowly, thinking her way through it. "Do you remember that little café we went to in Sydney – the one we stopped at when we went to see your friend, what was his name?"

"Trevor... and the café was Born To Bake Greek... I remember," Gary said.

"That café was great... but this café was incredible!"

Gary smiled. "It was, was it?"

"Gary, this café had everything... I mean, anything you could want was there – cakes, pies, cookies, all kinds of pastries. They even had a bistro where they served sandwiches and hot food. We had breakfast there, then went back in the evening for dinner. Gary, it was r-e-a-l-l-y good. I wish I could bring back some for you."

"If we ever go to Germany, I'll make you take me there. You go anywhere else?"

"After breakfast, we went to Drachenburg Castle. It's further south, on the other side of the Rhine. Drachenburg is a beautiful castle, Gary, with blue spinnerets, high on a hill overlooking the town of Konigswinter. The castle was built in the 1800's. It reminds me of that other castle – the one they used as a model for the

Sleeping Beauty castle…"

"Neuschwanstein?" Gary suggested.

"Yes, that's it. There are soooo… many castles in Germany, Gary! We have to take a trip here someday, when this is all over. It really is beautiful here."

"And get some pastries at The Bonn Coffee House."

"Yes, and pastries at the Bonn Coffee House."

"Speaking of 'when this is all over,' how are things going there? Does it look like we'll get a pledge to phase out fossil fuels? God, we need it. You would think everyone would get on board this time around."

"You would think so," Sara agreed. Would you believe, we're in the midst of the deadliest pandemic in history, and China found time to complain that Taiwan was allowed a seat here. Can you freakin' believe that? What is wrong with us?" Sara did not wait for an answer.

"Do you know the oil companies have more than 3000 lobbyists here? It's crazy! We're looking at the collapse of civilization! Honestly, Gary, I have this overwhelming sadness – no, despair - that we won't get a ban here, that we're incapable of comprehending our predicament…"

"Or, that the rich just don't give a shit, that they can't change, or won't change," Gary added.

They just keep talking about human exceptionalism, that we can overshoot, and our technology will save us. All we have to do is believe. I hear so much shit about phasing out emissions, eliminating unabated emissions, but nothing about phasing out fossil fuels. They're not going to do it."

"That's what will do us in, Sara. Accepting the shit the politicians feed us. Their hubris, their belief that we are special, that we can use Nature, trash it, that we can live apart from it. It's so obvious that we can't, but we don't do anything about it. Damn, there's places here in Australia that are nearly unlivable now. And they keep drilling and digging. Townsend keeps saying Australia is reducing its fossil fuel use, but he keeps approving new projects. He thinks we're stupid - or docile - that we just accept it. We're the 3rd largest fossil fuel exporter in the world - bigger than even the UAE. Emma was right the other night to call out the wealthy and the politicians who take their money. What we need is for people to rise up, force governments to do something… or tear them down, and

start over."

"Russel says we're incapable of accepting our real place in the world," Sara added, "that we're not top dog, just one species among millions, subject to the same natural laws as every other living being. I don't think we're ever going see that, Gary."

"I think a lot of people see it, it's just the rich won't accept it, because it means they will have to share. Don't give up hope, Sara. If the elites don't see it on their own, we'll have to force them to."

Gary then switched gears. "Look, sweetheart, you need to get some sleep, and I need to get to work. I love you, and I can't wait to see you. Just another week to go."

"I am exhausted. Things are going 24 hours a day here... no one seems to sleep. Love you, too. I'll call you again tomorrow. I can't wait to see you, too. Good night... uh...good morning. Love you. I'll call you tonight. Bye."

50

12 February 2029 Monday Day 12
COP33 Conference of the Parties
Bonn, Germany

Secretary General Adanna Okoduwa set the tone for the Round Table discussions. It was a short statement, stark and clear, meant to convey the dire situation the world faced.

“We are facing extinction. Of that there is no doubt. A pandemic like no other humanity has ever faced is killing our children before they reach the age of five. Our only hope is the anti-viral from the forests of Canada, but it, too, may be slipping through our fingers, facing extinction from a climate that is warming too fast. If left unchecked, these two threats will surely lead to the collapse of civilization, and very well to the end of Homo sapiens.

“We are at a critical stage in these negotiations, he continued. We cannot go home without a commitment to end fossil fuel use. To do so would be a calamity beyond imagination. We have two days left and It is time for us to face facts, to find common ground, to agree to do the hard things we all know we must - to acknowledge an end to the age of oil. Let us not go home and say we have accomplished nothing, that we have given up.

“Despite an agreement by all nations to keep temperatures below 2 degrees C above pre-industrial times, and preferably no higher than 1.5°C, land temperatures have broken through that agreed-upon ceiling, and are now permanently beyond it. Data

indicates that we, on our current trajectory, will reach 4.4 ˚C by the year 2100. Despite all the warnings, emissions are continuing to climb. In fact, they are rising faster than ever before. The least developed countries have contributed the least amount of emissions, but bear the brunt of the worst effects of climate change. Up to 3.6 billion people are highly vulnerable, especially Indigenous Peoples and those in the global south.

“Conditions will be much worse than we originally thought, and sooner than we predicted. Our models have been too optimistic. Reaching 1.5 ˚C may very likely trigger tipping points, leading to unstoppable heating and further biodiversity loss. We have already crossed the tipping point for corals, and will continue to lose them no matter what we do.

We will then lose all control. Our greatest concern is that we are close to a tipping point for the MycoArBoreal Complex, that beyond a specific temperature, the Complex will cease anti-viral production. We do know that the rising temperatures in the Boreal Forest are stressing the White Birch and Black Spruce trees, that many are succumbing to beetle infestations, and that their range is retreating.

“We are out of time. We must act immediately. There is no “next year.” We said seven years ago that we must act within this decade. We are now nearing the end of this decade, and have achieved little. We are burning more fossil fuels, have destroyed more ecosystems, cut down more forests, and lost more wildlife and biodiversity since 2020.

“Achieving the Five Global Goals we have alluded to during these conferences will save our children, will make a healthier, more equitable and secure world, and leave a livable planet, rich in biodiversity for our descendants. We will leave a sustainable world, one that will last centuries into the future. That must be our legacy - eliminating poverty, reducing gender and wealth inequality, transforming agricultural systems, replacing our current economic model, and eliminating fossil fuels as our energy source. This last goal can be accomplished here today. We need only the will and determination to do it. Let us begin deliberations here and show the world that we truly care.”

And so the delegates of nearly 200 nations and the European Union would try once again to end fossil fuel use and retreat from the precipice most thought they stood on.

“Mr. Secretary General,” the delegate from the Maldives raised his arm and began to speak. “We, the nations of The Alliance of Small Island States, want to enter into the record our objection to the decision to exclude representatives of Indigenous and First Nations People from these proceedings. It is they who have been on the front lines of climate change, feeling the worst of its effects, and it is they who have been faithful stewards of Mother Earth and its wild beings. It is their knowledge and wisdom we need to lead us in the right direction. It is not enough that they be recognized by the U.N. Declaration of Rights of Indigenous Peoples. They must be allowed representation here at this table and given full voting rights.”

“More than 370 million Indigenous People live on just 20% of the Earth’s surface,” added the delegate from Tuvalu, “but they protect 80% of its biodiversity. They have been caretakers of the life-saving Complex for thousands of years. Were it not for Indigenous Peoples’ special relationship to the Earth, safeguarding this Complex, we would have no means of saving ourselves from this Pandemic. They are recognized as the Earth’s preeminent protectors, but disallowed from participating in decisions affecting Earth’s fate. That is unfair and unconscionable. They must be part of the process.”

The demand for inclusion of Indigenous Peoples in the negotiating process was met by an equally strong rejection by Russia, China, Canada, and the United States, who countered that, “as had been argued many times before, it was clear that only countries could become members and have negotiating and voting rights, because countries were legal entities with a governing constitution and recognized by international or domestic law.” Indigenous Peoples and other organizations could form groups or alliances to advise or influence member states in their negotiations. The United Nations, they said, formerly recognized the rights of Indigenous Peoples, and all member states took seriously the role of Indigenous People in helping to form policy.

Island Nations representatives reminded the developed countries that Indigenous peoples *were the original inhabitants* of the lands colonial nations stole from them, and now falsely call their own.

There was a noticeable silence from the developed nations when this observation was noted.

Despite the aforementioned push-back from AOSIS member

states, as well as the African bloc of nations, the Developed Nations stood firm, and the matter was dropped.

Not all delegates agreed that conditions were as dire as Secretary General Okoduwa suggested. China's delegate noted that China and India, two developing countries fighting to achieve parity with developed nations like the US, Australia, and Canada, repeated the position they had held from the beginning, that phasing out fossil fuels, as important as it was, was unrealistic. "Oil, gas, and coal," he stated, "would continue to be necessary far into the future, both for energy and for national security." Even though China was the world's leader in renewables, fossil fuels would still remain crucial for their development.

India's envoy, though optimistic that fossil fuels could be replaced "eventually," suggested that coal was still the most affordable and reliable form of energy. Both countries blamed developed countries, in particular the United States and Western Europe, for the lion's share of cumulative carbon emissions since the beginning of the Industrial Revolution, and said it was hypocritical for them to call China and India big polluters. They had every right, they asserted, to strive for the same standard of living that the US and Europe had been enjoying for a hundred years. They supported increased focus on renewables but asserted their right to continue using fossil fuels.

The delegate from Tuvalu challenged that line of thought. "If the rich nations of the world funded new renewable infrastructure, replacing fossil fuel infrastructure, would the delegates from India and China agree to phase out the use of oil, gas, and coal?

"Yes, we would," the delegate from China replied. "If the United States gave up some of its wealth to help pay for new renewable projects, I believe we would be inclined to phase out fossil fuels. "However," the China delegate continued, "it is unfortunate that the United States delegate is not with us to respond, as their President no longer accepts the premise that climate change is real."

U.S. President Wainright was still calling climate change a hoax and a Democrat plot to dismantle democracy and replace it with socialism. Even Democrats were disinclined to pay for climate projects in China or India, to upgrade and modernize their energy generation infrastructure.

"With due respect," chimed in the delegate from the Seychelles, "we cannot expect the United States, or any other wealthy nation

for that matter, to pay for projects in China, when they won't even commit to funding the Loss and Damage Fund for vulnerable, poorer nations. Every year, during these deliberations, we make the same demands... and receive the same response. All agree to fund the Loss and Damage Fund, but each year we endure more droughts, wildfires, hurricanes, and destruction. But we do not receive the aid we were promised."

The Russian representative expressed doubts that renewables could ever replace fossil fuels. "Eighty percent of global energy comes from fossil fuels. They are cheap and efficient, easily transported, and dependable." Other BRIICS countries, Brazil, India, Indonesia, China, and South Africa, whose economies were also heavily dependent on fossil fuel revenues, argued for restraint, insisting that fossil fuels were not the problem, that emissions were, and eliminating emissions should be the priority. They agreed that eventually the world would have to wean itself off fossil fuels, but trying to do so in the time span recommended by the IPCC would cause chaos and the disintegration of world economies. Brazil's delegate proposed phasing in renewables first, along with emissions reductions, and then phasing out fossil fuels. Saudi Arabia claimed that an immediate cessation of fossil fuel use would bankrupt countries dependent on the revenues.

AOSIS member states fought back. "If we had accepted the science ten years ago, even, we would have had the time necessary to make the transition," said the delegate from the Marshall Islands. "We knew 25 years ago the climate was warming and fossil fuels were to blame, and yet we did nothing. We procrastinated and turned a blind eye. And here we are. We have no time left. We don't have the luxury of gradually phasing in renewables and waiting ten years to begin phasing out fossil fuels. It will be too late by then. We will probably cross tipping points and lose control of our climate."

The UAE delegate angrily pointed and shook his finger at the delegates from AOSIS. "It is easy for you to throw blame around. You can not solve this problem by casting blame. The science does not support the claim that phasing out fossil fuels is necessary to stay below 1.5 degrees C. There is no proven science to support that claim."

Secretary General Okoduwa was shocked. "The delegate from the United Arab Emirates is wrong. It is most assuredly proven. The

science is absolutely clear. Stopping the use of fossil fuels will keep us under 1.5 degrees Celsius. That means no abatement, no reduction. It means no fossil fuels, period. We must triple the installation of renewables, double efficiency... and phase out fossil fuels."

(It was interesting to note that 1.5 ˚C was still being discussed when it was clear among most climate scientists that 1.5 ˚C was no longer feasible. "That ship had sailed," went the saying. Even 2.0 ˚C was in danger of being lost within a few years. The world was assuredly heading toward 3 ˚C by 2050.)

China agreed to speed up renewable installations. The UK delegate supported abatement, adding "a formal agreement to end fossil fuels was unnecessary, as long as the world reached net zero by 2050." This brought sharp rebukes from the Tuvalu, Fiji, and Papua New Guinea delegates. The UK suggested that technologies were available to block sunlight and sequester carbon underground.

"We do not have time to try out technologies that have never been proven at scale!" Frustration and exasperation were evident on the face of the Madagascar delegate. "We will have lost the Boreal Forest Complex before we have installed the first working CCS plants, and with it, any hope of saving newborn children from this damn virus – excuse my language."

The EU then surprised everyone by reversing its position and offered to commit to a fossil fuel phaseout, saying it also intended to honor their commitment to fund the Loss and Damage Fund. The EU countries, he said, "would contribute $650 million this year."

"We can build massive greenhouses to protect the trees." The Russian delegate took no time responding. "We have the technology to do that now. That will buy us time to make the transition in an orderly and methodical manner. The fossil fuel industry is not prepared to retool so quickly. Neither is society prepared to make such a radical transition. Russia is prepared to commit to a phase out of all emissions, including flaring."

The Marshall Islands representative reminded his Russian counterpart that the world had been haggling over the end of fossil fuels since the first COP in 1995. That one, too, had taken place in Germany. And they were no closer now to ending their addiction to fossil fuels than they were then. They needed to look deep into their souls and ask themselves if they were willing to stand by and watch the collapse of civilization and the destruction of natural support

systems, when they knew they could have prevented it. The Saudi delegate took no time challenging the Marshall Islands delegate to come up with a concrete plan that would allow the world to transition to an acceptable alternative to the current system, one that would not end in chaos. “The current economic model has lifted billions out of poverty and provided everyone with the opportunity and means to become self-sufficient and well off. If you will show me a better plan, I will endorse it.”Discussions went well into the evening. The delegates broke briefly for dinner but were back at it again by nine pm. Tempers were short and interactions were sometimes bitter and heated. A few delegates walked out in disgust, only to return later. Small Island nations, nations in the global south, those that represented Indigenous Peoples worldwide, and nations suffering from the effects of climate change and a Pandemic, unable to protect themselves, fought for a new socio-economic model, one that was equitable to all. They asked for an end to poverty, for greater opportunities, and help from rich countries to improve their lives through debt cancellation, greater access to loans, and education for women and girls. They wanted food systems modernized, an end to agricultural expansion, land destruction, and deforestation. They wanted localized production and consumption, elimination of waste, healthy diets, and access to safe drinking water and sanitation.

Most of all, they wanted an end to fossil fuels and the transformation from the failing capitalist market system to an economic model that emphasized happiness, not GDC or growth or production or wealth, one that was sustainable, circular, fair, and worked within the boundaries of the natural world. They wanted a system that valued all life.

Resistance came from countries dependent on fossil fuel revenues and from countries in the global north, wealthier nations, that were invested in the free market system of capitalism. They continued to stress that emissions were the immediate problem, not the burning of fossil fuels, and emissions were the easiest to fix. They acknowledged fossil fuels would eventually have to be phased out and replaced with renewables, but shouldn’t be the immediate focus. Eliminating emissions through Carbon Capture and Storage was a proven technology and could be quickly scaled up with international cooperation. That would have an immediate effect on the Boreal Forest, returning the temperature to a safe range and

allowing continued harvesting of the mushrooms for anti-viral extraction. They agreed to increase renewables infrastructure projects and step up energy efficiency.

Regarding giving Indigenous Peoples negotiating and voting rights, and representation, they sympathized with AOSIS's position, but reminded the delegates that membership extended only to nation states, not individuals or groups. Indigenous Peoples' advice, recommendations, knowledge, and long historical relationship with the land would continue to be sought after and respected, as always.

The current economic model, the global north felt, had lifted countless millions out of poverty and raised their standard of living. Health, sanitation, and longevity had risen over the whole period since the beginning of the Industrial Revolution, and continued to improve. It would be foolish to change a system that was clearly working and benefited so many people. It was merely a matter of time before all the world's people would be enjoying a happy and productive life.

Though there was some disagreement, the consensus among rich nations was that, while it was true that the environment had been damaged and biodiversity diminished, the condition was not permanent, and both would improve with new technologies and more commitment. They would be able to overshoot the 1.5 °C target for a period of time, and then, with new technologies, be able bring the temperature back down into the safe range.

It was four thirty the following morning when discussions broke up. Most delegates, keenly aware of the weight of responsibility they bore, to devise a plan that would set the world back on a safe path, had stayed to the end. They agreed to meet informally over the course of the day, clarifying their positions and digging deep to compromise, and gather again formally the following morning, the last day, to finish deliberations and craft the Joint Statement of Agreement.

51

13 February 2029 Tuesday
COP33 Conference of the Parties
Bonn, Germany

A woman of about 60 or so, sitting across from Sara, in the Marriot lounge, watched Sara leafing through a Travel and Leisure issue featuring Germany. “You really need to come back to Germany in the springtime,” she said, with a heavy German accent, “It’s quite beautiful, and there is so much to see and do.”

Sara looked up and smiled politely. “That’s something I’d love to do… when this is all over. Are you from here… do you live in Germany?”

“Yes, I was born here, in Geesen, a small village just north of Frankfurt. I live in Cologne now. Where do you live?”

“Australia. Canberra, actually. I love the old-world feel here, the architecture, the quaintness. I’ve only been outside Bonn a short ways, but the countryside is beautiful.”

“May is the best time of the year. The weather is warming, but not hot yet. The countryside is coming alive again, turning green, the wildflowers are beginning to bloom. The Schneeglocken…” The lady searched for the English translation, “the Snowdrops… are popping up everywhere. They are the official symbol of springtime in Germany. Cherry trees, tulip beds. Everyone here has a garden. There are large plantations of tulips outside some of our cities. You can go there and pick your own.”

“Sounds beautiful.”

And the fields are just ablaze with the yellow flowers of rape – rapeseed – canola. You can see them everywhere.”

Sara smiled.“Unfortunately, climate change is affecting the growth and quality of rapeseed, too.”

The lady stopped for a moment, then extended her hand toward Sara. ‘I’m sorry, my name is Rita.”

“It’s nice to meet you, Rita. My name is Sara.”

“You are from NBC News. I’ve seen your interviews. Quite interesting. How do you think the proceedings are going?”

“Truthfully? I am not very optimistic. There is still so much resistance to giving up fossil fuels, even now. We are facing an extraordinary crisis, maybe the end. I don’t know that we will ever be able to give up this way of life.”

“I am a sociologist. A student of the human condition. My specialty is society, social behavior, and their relationship to climate change. Climate change isn’t so much an environmental problem as it is a cultural problem.”

“How so?”

“For almost all of us, our cultural upbringing and experiences create our view of the world. Everything that happens to us is filtered through this cultural background and determines how we interpret it. Each of us has our own reality, our own worldview.

Some of us are brought up with a community worldview - helping each other, equality, and justice. We believe that we’re all in it together. Other people are brought up to believe in the power of the individual, that we each get what we deserve, and work hard for. Those people believe in free markets, in a hierarchical society, in deregulation, and limited or no government interference. They believe in the current form of capitalism, and accept that it leads to inequality and wealth concentration.”

Rita continued, “There is ample evidence that humans have altered the climate and damaged the land, water, and air, maybe irreparably, and sent biodiversity into a downward spiral. There is no question about that. The problem isn’t so much whether or not we have damaged our planet, we all know we have. The problem is what conditions we must accept to repair it. If the conditions we must accept are counter to our worldview, we will deny there is a problem. So we make up explanations as to why there is no problem, no matter how unreasonable those explanations may

seem. If we were to accept the conditions, it would shatter everything we were brought up to believe."

"That's very interesting." Sara smiled. "It makes great sense. I had never thought of climate denial in those terms, but it does explain the extraordinary extent some people will go to, to deny what seems obvious. "I read somewhere that humans evolved with biases that keep them from acting on long-term threats, like climate change. Do you think that's true?"

"It seems to be," Rita replied. "The bias you refer to is a survival instinct that originates at the most basic level of cognition, enabling an organism to make quick life or death decisions, like fight or flight. In mammals, that level is the limbic system, a primitive part of the brain, which controls primal emotions - fear, anger, and pleasure, that drive behaviors critical to survival.

"We evolved in a world where pleasure, like food and sex, and threats to life, were all linked to survival - of the individual, or the species - and required simple decision making and immediate responses. A predator attacks, or a food source, or a potential mate suddenly appears, or a fire breaks out. Staying alive or receiving gratification ensured survival, but demanded immediate action. Those cognitive biases that were so critical for life and death decisions are still with us, and still necessary today."

Rita continued. "But today, we are also faced with situations that are not immediately life-threatening, that may have multiple solutions, or that involve future events - far-off dangers. The simple fight or flight decision doesn't work in those situations. That demands complex decision making, which is the job of the frontal lobe, present in more highly evolved beings, like us. So, when we're faced with a complex future threat, like climate change, which is slow-moving, the limbic system doesn't recognize the danger, and freezes up – it's not meant for that - and we have trouble processing that danger. The frontal lobe tells us of the danger, but we don't feel it, so we don't react to it."

"I guess businesses are no different. They don't often plan for the long term, either." Sara added.

"Exactly. Neither do governments, which are run by people. And they think short-term, immediate gratification. Now you can see why it's so hard for us to act on climate change."

"Yes. I feel more enlightened, but even less hopeful."

Rita smiled sympathetically as she stood up from her chair, just

as a man about her age approached. “That’s why you need to take in as much of the beauty of the world as you can,” she said, turning toward the man as he reached out his hand to help her up. Isn’t that so, dear?”

“What’s that?” her husband asked.

“I was just telling Sara that Germany is beautiful in the spring and that she should come back in May when all the bulbs are in bloom.”

“Ah, yes,” Rita’s husband agreed. “Spring is the best time of the year. It is the time of renewal.”

“Well, it was nice talking to you, Sara. And now we are off to dinner. Take care of yourself, and try to make the most of every day.”

Sara smiled at Rita and thanked her. “I will try, Rita. It was nice talking to you. Enjoy your dinner.”

52

15 February 2029 Thursday
COP33 Conference of the Parties
The Final Day
Bonn, Germany

It appeared to be a scene of unadulterated success. On stage at the end of the Closing Plenary of the UN Climate Conference, COP33, was Conference President Bernhard Schneider, UN Climate Chief John Anderson, Executive Director Johann Schmidt, and others, all clapping and smiling. Anderson, however, seemed to be the only one to lack enthusiasm. His smile seemed a bit off. Two weeks of non-stop deliberations by thousands of participants had produced an Agreement COP President Schneider called momentous. The Agreement, he said, would halt the upward march of global temperatures and lead civilization back to a habitable zone.

There were others, however, who were not so generous. They called it a calamitous failure, in fact. The final nail in the coffin of humanity. It would lead to disastrous climate tipping points that would bring total devastation to the earth's atmosphere, ecosystems (most notably the northern Boreal Forest), and biodiversity, leading to civilizational collapse and possible extinction of humans.

The Agreement did spell the end to coal, though. That was good news. All parties agreed to begin phasing out the mining and burning of coal by 2035, five years hence, with the complete

cessation of coal use by 2050. No new coal plants would be funded. Increased production of clean natural gas would replace the coal lost.

Each country was expected to submit a plan for coal phase-out by the end of the year. The only hitch was the lack of consequences for not complying with the agreement. James deBrum, Chair of AOSIS, angrily denounced the failure to include any means of enforcement, saying it was “tantamount to allowing countries a free pass to continue burning coal.” Other countries, Australia and China, in particular, hailed the decision to phase out coal as a major step forward in the path toward zero carbon by 2050. All countries unanimously re-stated the need to transition away from fossil fuels (which seemed to be in direct opposition to the UAE’s separate, but quietly issued announcement, that they were on track to double oil and gas output by 2030).

Further, all countries agreed to “phase out emissions” as soon as possible. To this end, it was agreed there would be a major investment in and focus on Carbon Capture and Storage technology. As mentioned earlier, natural gas would play a significant role in reducing emissions.

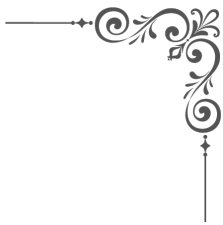
Conference President Schneider acknowledged this would be an ambitious undertaking, but it had the potential to lock up enough carbon to “lower the arctic temperature by one-half degree Celsius over the next decade, which would save the Anti-viral Tree/Fungus Complex.” That would allow time to develop a vaccine to the RSV virus.

Julianne Brooke, a paleoclimatologist at the Cambridge Center for Climate Research, refuted that claim, saying “...Carbon Capture and Storage is unproven at scale and, even if it could be scaled up, it would be impossible to get enough units up and running to lower arctic temperature by one-half degree in a decade. The CCS industry hasn’t been developing anywhere near what would be needed to sequester the amounts necessary to lower temperatures, even a minuscule amount. We can store about 96 megatons of carbon per year now, up from about 49 in 2023. The most optimistic CCS scenario we have now estimates 15 to 25 gigatons of carbon sequestered by 2050. 2050! That would imply a 150 to 250 fold increase, something that is not likely to happen. And that would not even equal the amount of carbon we are pumping out now, which is nearly 40 gigatons. So, the prospect of CCS accomplishing what the

Conference Agreement projects is just not possible. The temperature is just going to keep rising."

Conference parties re-committed to net zero by 2050, and rich countries re-committed to fund the Loss and Damage Fund, which they admitted they had been falling short on. The World Bank would continue to administer the Fund (for which it would take a 25% fee). Every effort would be made to eliminate methane emissions and flaring of excess gas by 2032. Installed renewable energy projects would be tripled, and energy efficiency would be doubled. Finally, in keeping with their commitment to transition away from fossil fuels, each party to the Agreement pledged to initiate a program leading to the electrification of "everything."

Not mentioned in the Agreement were negotiating rights for Indigenous Peoples. Or gender equality, or taxing the rich, or eliminating subsidies for the oil industry, or re-vamping the agriculture-food systems. Or transitioning to a just and equitable – and sustainable - economic system, one in tune with the natural world. AOSIS was highly critical of the Agreement. In a joint statement with the AFN, they slammed the language of the Agreement as "weak and lacking in commitment, that it did not acknowledge the important contribution of Indigenous Peoples around the world by giving them a seat at the table, and that it was "business as usual. The Agreement would also result in the loss of the Boreal Forest and the anti-viral, and spell the doom of mankind."



Part 4

Reckoning

I for one believe that if you give people a thorough understanding of what confronts them and the basic causes that produce it, they'll create their own program, and when the people create a program, you get action.

Malcom X

53

13 March 2029 Tuesday
Somewhere in the Southern United States

The headlights in the distance looked, at first, like a single point of light in the blackness of the night, flickering as they came closer, rising and falling with the roadway. It was a nearly cloudless night, the landscape in that direction lit only by the barest sliver of the moon. As the car approached the massive Exxon-Mobil refinery, the single point of light separated into two. The sound of the engine was barely audible, unusually quiet. As the car neared the plant, the headlights went dark, and the engine went silent. The car rolled to a stop off the side of the road, about 300 feet from the fence that surrounded the plant.

Two figures, both male, emerged from the car, one short and stocky, the other tall and lanky. A third person, a woman, remained at the wheel on the driver's side. The two male figures quickly went around to the back of the car as the trunk popped open. The taller of the two removed some items and handed them to the shorter figure, then reached back into the trunk and pulled a heavy, bulky, large backpack out of the trunk, and dropped it on the ground.

"Jesus, Frank, will you please be careful with that freakin' thing?" the shorter man said in a loud whisper. He pushed the trunk door down quietly until it locked. "You got the bolt cutters?"

"Yes," Frank replied, irritated at the question. "I got it. Worry about your own shit, Jake. "Here, help me on with this backpack."

Jake carefully lifted the backpack. “Turn around.”

Frank turned around and slipped his arms through the straps as Jake hoisted the pack high up on his back. Frank then buckled it.

“Alright, let’s go.”

The two men moved quickly, running in a low crouch to the fence, and set everything down. On the other side of the fence, off in the distance, was the sprawling immensity of the refinery, lit up with countless points of light. Vapor being released from the top of gas flaring towers high above the reactors was illuminated against the night sky. Work went on twenty-four hours a day, refining crude oil into a myriad of forms, powering civilization.

The two men crouched in the grass. Frank held on to the fence while Jake used the bolt cutters to cut a slice big enough for the two to climb through. They slipped through the cut and then pulled the backpack through. Quickly, they ran, crouched down, about a hundred and fifty feet to an electric substation. The substation was in complete darkness, save for a small light above a side door. As they sat there catching their breath, they noticed a pair of headlights coming toward them on a service road from the refinery.

“Shit, someone’s coming,” Jake said. They grabbed their things and raced to a small propane tank about fifty feet away. They scrambled to the backside of the tank and peeked over the top, watching the approaching vehicle, a Ford Bronco, roll to a stop alongside the substation. Printing on the side indicated it was security. The door on the passenger side opened halfway, and a short, very rotund man in a security uniform pushed it all the way open and, with some effort, got out and stood beside the open door. He adjusted his belt, pulled his pants up a bit, and straightened his uniform. He then reached back into the vehicle and retrieved his hat and a flashlight. After putting his hat on, he turned on the flashlight and shone it around.

“See anything?” asked the driver of the vehicle, his head lowered so he could see his partner standing outside.

“No,” replied the rotund security guard, looking around. “I think Fred’s hallucinating – again!.”

“I think he’s smokin’ pot again, the driver shot back. Every time he does pot, he sees things, and we have to go looking around. It’s bullshit. ‘n’ I wanted to watch the end of the game.”

“Yeah, but he’s the boss.”

“Only because he’s a suck-up ‘n’ ass-kisser. One of these days I’m

gonna report him,”“You been sayin’ that for 2 years, an’ haven’t done it yet. I’m gonna walk around.”

The security guard unclipped the holster for his gun, rested his right hand on the gun handle, and pointed the flashlight out in front of him. Slowly, he walked the perimeter of the substation, coming back to the starting point. He stood still for a few seconds, staring in the direction of the propane tank, then shone the light toward it and panned it back and forth across the grass. He then slowly walked toward it, panning the light back and forth, his eyes fixed on the tank.

Jake and Frank crouched down further behind the propane tank and all but stopped breathing, their hearts pounding in their ears. They could see nothing but the bright light coming toward them.

“What’s he doin’? Frank whispered.

“Shhhhh... I don’t know,” Jake whispered back. “Keep down.”

The guard was invisible, somewhere behind the light. When he was about thirty feet from the tank, he stopped again, staring intently at the propane tank, his right hand nervously fingering the gun handle. He lifted the gun partway out of the holster and stood there in the grass for thirty seconds, staring straight ahead.

Then, he pushed the gun back down in the holster, fastened it, turned, and walked back to the vehicle. He slid back onto his seat and closed the door. His partner looked over at him.

“What were you doing out there? You see anything?”

“No, nothin’. Let’s get back. Nothin’ here.”

His partner stared at him for a second, then put the vehicle in gear, and they turned around and headed back toward the refinery.

Jake and Frank watched as the taillights receded into the distance. They looked at each other.

“I thought he was going to give us away,” Frank said with relief.

“He was thinking about it,” Jake replied, equally relieved. “Guess the money was too good. C’mon, let's get this done, an’ get out of here.”The two set the backpack against the side of the building and ran back to the cut fence, slipped through, and then made it back to the car.“I was terrified,” the driver said, as Jake and Frank slipped back into the car and eased the doors shut. “I thought you were gonna get caught.”

“We didn’t. Drive down the road here a bit, and I’ll set that thing off. Keep the lights off.”

The driver started the engine. The electric motor started up,

making little sound. The driver eased it into drive, and the car quietly moved down the road about two thousand feet.

“Right here!” Frank touched the driver on the shoulder, and the car came to a stop.

“Here goes.” Frank held the transmitter in his hand and looked at the other two, his eyes wide with anticipation.

“Do it.” Jake said.

Frank pushed the button. Instantly, the substation was engulfed in a blinding flash. The sound concussed their ears. As the fireball from the explosion billowed up into the air, all the lights at the refinery went out. Then a secondary explosion erupted as the propane tank caught fire. Almost immediately, a third explosion could be seen, followed by fire at the refinery itself.

“Holy shit!” Frank yelled, and they all burst into cheers.

“Get the fuck out of here!” Jake screamed as he grabbed the driver’s shirt sleeve and shook it. “Get the fuck out of here!”

The driver floored the accelerator pedal, and the car sped off into the dark.

54

17 March 2029 Saturday
Blue Mountains National Park
Australia

Gary noticed it first.

"You guys smell that? Smells like smoke."

He, Sara, and two other couples, James and Barbra Elliott, and Sandra and Jonathan Edwards, were hiking a trail in the Southern Blue Mountains area of Blue Mountains National Park, about three hours north of Canberra. They planned to spend a long weekend there unwinding, hiking from Wentworth Falls to Katoomba, a 19-kilometer trek they had done a few times before, and loved. The trail was well marked, with grand overlooks here and there, and camping areas to rest overnight.

James was a colleague of Gary's, and Barbra was a PA Health Clinician. Sandra and Sara had been colleagues at The Australian before Sara left for NBC. Jonathan taught high school science and math.

"It is smoke," James confirmed.

"It's probably smoke from the fires burning in Victoria," Barbra added.

"I was hoping it wouldn't drift this far north." Gary was disappointed. "I should've picked something further away." He rounded a turn in the trail and scrambled over a tree trunk that lay across the trail.

Sara climbed over after him. “That’s getting harder to do, especially this time of year.

“True.”

“The winds must be carrying the smoke further north today,” Jonathan said, as he clambered next over the fallen tree, “or the fires are spreading. I think they were worried that might happen. It’s only about 20% contained as of this morning.”

“I could smell the smoke when I went outside this morning,” Sandra said, as Jon helped her over the tree trunk. “Remember, Jon, I said something to you about the smoke this morning when I was putting the gear in the trunk? You could taste it.”

Jon nodded in agreement. “Yeah, the air’s been hazy for weeks. It’s been this way since early spring. The fires are growing bigger every year. I think when we get a bit higher up on the trail, though, it’ll clear out.”

Gary was clearly annoyed. “I hope so.”

“I heard eighty-eight people have died so far.”

“A hundred and nine, Barb, as of this morning,” Sara said.

“A hundred and nine!” Barbra was surprised the number had risen that high so fast. “I remember when I was a kid, we would have brush fires every year, but nothing like now. Now, the fires are hotter and bigger, an’ they start earlier in the season, and last longer.”

“Yeah, and the droughts are getting worse, too,” Jonathan added.

“The land dries out from the droughts and all the heatwaves, making it easier for everything to burn. All you need is dry lightning, and you’ve got a fire that’ll burn 10,000 hectares in a week. The fires are nearly year-round now. Ow, shit!” Gary stubbed his toe on a rock on the trail, losing his balance.

“You OK?” Sara asked as she grabbed Gary’s arm, helping him right himself.

“Yeah, thanks.”

“Last year was the worst ever,” Sara said. Worse than the ’74 fires. A hundred twenty million hectares. That’s nearly sixteen percent of Australia’s land area.”

“Nearly a half billion more animals killed last year than in 2020,” Gary added. “That’s a crazy number of animals. Just think what it must be like for them, with no place to go to escape it.”

“And more people are dying every year from these fires, too,”

Barbra added, “either from the fires or from respiratory complications from the smoke... or from heat stroke. I’ve seen more people coming into the clinic with breathing problems this year so far than all of last year. It’s getting to be an epidemic.”

“And yet...“ Gary stumbled over a rock and caught himself. “We keep on digging coal out of the ground. It’s insane! It has to end. We have to make it end.”

The trail was beginning to rise noticeably in elevation now. There were more switchbacks, more clambering over rocks. The trail also narrowed in places, forcing the group to hike single file. Gary came to a large overhanging branch across the trail and raised it up, allowing Sara to pass underneath.

“You can thank Townsend for that,” James said, coming up to the tree branch. “He’s going to keep on approving mining permits as long as the miners keep supporting him and the corporate rich keep putting money in his pocket.”

“No matter he’s running headlong into a catastrophe, and carrying us all with him,” Gary added. “Something needs to be done - when the hell are the people going get fed up and stop this insanity?”

“Townsend doesn’t give a shit. He’ll be one of those elites that has the money to wall himself up in a gated community, with food, water, guards, and all the comforts.” James grabbed the low branch and raised it up for Barbra to pass underneath. Jonathan took it from James and held it for Sandra.

“Thank you, sir.” Sandra passed underneath.

“My pleasure, miss.”

“Until he runs out of food, too. No one will escape this. He’ll just last longer.” Sara said.

“And live better, in the meantime,” Gary added. “But what’s going through their heads? They see the same things we do. They can’t be stupid.

“They have a completely different worldview,” Sara said.

“What do you mean?”

“They see the same things we do, but they process it differently, because of the way they grew up, their environment, what their parents taught them, the people they hung out with. A sociologist at the COP told me that.”

The trail continued upward and became more difficult. They all fell silent as they concentrated on the ascent. Switchbacks zig-

zagged back and forth, making it easier to traverse this part of the trail, but stretching out the distance to the peak. Some switchbacks leveled out, or descended a bit, easing the pain in their legs. As they reached the highest point on the trail, the trees thinned and the trail leveled out. They rounded a huge rock jutting out on part of the trail, then entered a clearing, offering a spectacular, panoramic view of the Blue Mountains off to the north.

“I’m never going back home... ever,” Sandra stood mesmerized by the view. “Look at that!”

“You were right, Jon,” Gary said, as he gazed outward toward the other peaks and the verdant Jamison Valley below. The haze had lifted. “I don’t remember it looking this beautiful. It’s been a long time.”

“Too long. Must be a thousand-foot drop-off here.” Jonathan looked carefully over the edge, then backed up a few paces, and stared off into the distance.

From their perch high in the mountains, it seemed the world was at peace. There was no indication of the turmoil going on below. There was a light breeze, the air was cool, and the only thing they could hear was the sounds of birds calling to one another, flitting back and forth from tree to tree. The sky was a deep blue, filled with puffy white cumulus clouds, intensely white where the sun struck. A few eagles could be seen high above, against the clouds, their wings stretched out broadly, riding the thermals in ever-widening circles. Off in the distance, they could see dark clouds building into a thunderstorm.

“This is the perfect place to take a break, take in the view, and have a drink.”

“All right, but we can’t stay too long, looks like rain in a couple of hours. We’re not too far from the camp, and it's all downhill from here.”

They all took their backpacks off, set them on the ground, and found a place to sit, or lie down, or prop up against a tree or rock. Groans and sighs of relief were audible all around. Everybody went for their thermoses.

‘I think it’s been too long since we’ve been up here, like this.” Sara pulled her thermos out of her backpack and took a long drink. “But this is really great. We need to do this more often, guys.”

“I know, right?” Sandra agreed.

The others joined in, toasting with their cups. They all went

silent for minutes, each deep in their own thoughts, taking in the views, feeling the peace and quiet, forgetting just for a moment.

"I'm afraid we're going to lose all this, Sara? What are you hearing? Do you think the assholes in parliament will come to their senses before it's too late?"

"Based on their worldview, I would have to say no." Gary popped in.

"You're so pessimistic, Gary," Barb said.

"No, just realistic," Gary replied.

"I don't know, Sandra. I hope they will, but I'm afraid they won't listen to reason until it's too late. I'm beginning to agree with Gary. I think it's going to take a movement by the people. I used to think the electoral process was the way to make change. Elect the right people, and they will do the right thing. But the system is too corrupt, too rigged in favor of the rich. When a politician gets elected, he or she is too dependent on enormous amounts of money to stay elected. The only way to get that much money is through big donors, not the voters, and those donors want something in return for their money."

"The rich get richer," James stated matter-of-factly. "It is what it is."

"So pressure from the people is the only way, I think," Sara continued, "and, although I see groups out there gearing up for a fight, like the Pacific Islanders and other Indigenous groups, I don't see protests on the scale it needs to be."

"Not yet," Gary agreed.

"But, people are beginning to lose their patience, right? Demonstrations are increasing, getting bigger?" Barbara asked.

"But not yet on the scale that it needs to be for real change," Sara replied. "Not on the scale that will get governments to abandon support of the fossil fuel industry. They have to be massive protests. Hundreds of millions of people – billions - all over the world. Organized. They've got to shut down economies, bring governments to a halt. Governments will have to be forced into it." Sara took another drink of water from her thermos. "I don't think that's going to happen."

"Well, that's depressing. You're as bad as Gary," Barb said.

"Meanwhile, everything is unraveling," Sandra said. "Women are resorting to abortions increasingly, rather than take a chance carrying a baby to term, and then tragically losing it a year or two

later. It's agonizing. More and more women are opting out of having children, too, at least until we have the anti-viral, or a vaccine."

"A vaccine, I think, is still far off," James said.

"And, as for the mushroom anti-viral, that's going to be a mess, too," Gary said. "I don't know how the Dene in Canada are going to retain control of such an operation – and keep it fair. The elites are going to try to make deals to get preferential treatment. Talking about mass demonstrations, Sara, I think Russel had a point. The Dene would do better to hold the anti-viral hostage to get everyone to sit down and truly negotiate a fair deal."

"Schools are beginning to close everywhere," Sandra said, looking at Jonathan. "Tell them, Jon."

"It's just the lower grades, right?" Barbra asked.

"No, it's not just the lower grades, Barb," Jonathan said. It's high school, too. I can already see classes are beginning to thin. Kids and parents are beginning to wonder what the point is. I'm in touch with teachers all around the country who are seeing the same thing. And it's not just Australia. This is beginning to happen in other countries, too. Parents are beginning to lose hope. They're losing confidence that governments can correct this. That they even want to. Teachers are disillusioned, quitting. Many are joining demonstrations. In fact, I'm thinking of joining them, myself."

"That's what it's going to take," Gary said, "for everybody to join in the demonstrations."

"What?" Sandra looked at Jonathan, surprised.

Jonathan looked back. "You know I've been thinking about it. We've talked about it."

"I didn't think you were serious."

"Jesus, Sandy, I feel helpless. I need to do something. Sara and Gary are right, Townsend isn't going to do shit unless he's forced to. He needs to fear the people, not his rich friends... and the people need to make him afraid. Not just losing an election, but losing his life. We may not have the money his rich friends do, but we have the threat of revolution."

Barbara and Sandra were stunned.

"The time for electoral change is past," Gary said. "The people need to rise up and take control. Force change. Look, Mother Nature has done all she can. She's watched us back ourselves into a corner, with no way out. Now she's given us an out - save the

Forest, save the children... save the human species."

"Except our leaders are too dumb to see it."

"Or too fucking greedy," Gary replied. It is the responsibility of the People to help Mother Nature, do what needs to be done - or we're all fucked. We need to try."

"Gary's right." James broke in. "People are afraid to go to work, to go shopping, to interact, for fear of spreading the virus and killing someone's kids. We have no leaders, no one willing to step up and do what has to be done. They're all still worried about getting re-elected."

"We're way past that," Gary said. "The way things are going, there won't be elections or a government. Parliament is delusional. People want - no, need - this government to act, to put restrictions in place, to save lives. And COP was a failure."

"Unemployment is going up, businesses are closing, the economy is failing, unrest is growing," Sara said. "If this keeps up, Gary's right, we won't have to worry about elections - populations are going to crash, and chaos will take over."

"That's why mass demonstrations are so important," Gary said. "Mass demonstrations that are focused on change, not just expressions of anger and despair. We all need to focus on getting national leaders to change direction. Make them realize we will not accept the current system any longer. But, killing politicians or oil executives is not the answer.""But it will get their attention. They'll know we're serious. Like the bombing of the Exxon refinery in the US." Jon said.

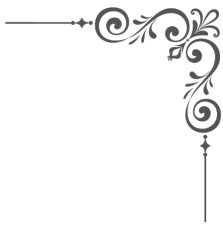
"I hate to say this, but Jon may be right. The rich won't change unless death is on their doorstep, unless death touches them." Barbra noted. "I don't advocate killing anybody, I'm a doctor after all, and I do believe in the Hippocratic Oath. But, I see children dying every day – children I can't help – and it's agonizing. It's always the poor, the people who can least afford it that have to keep paying for the sins of the wealthy. When the rich begin to feel the effects of their greed, that's when things change. If they fear for their lives, or they have to suffer, if it's their kids who are dying, they may be more inclined to change their position."

"You may be right, Sara said, "but violence may just harden them and make for a bloodbath. Violence should be used if everything else fails, a last resort... and everything else may fail, and it may become necessary," Sara continued, "but the world has

to overcome the petty differences coming between us, and look at the big picture. We're facing societal collapse. We can't be fighting wars in Ukraine and Gaza and Sudan and Ethiopia. That can't be what's important to us. Health, happiness, equality – that's what should be important to us, and that's what we should be fighting for."

Gary touched Sara on the arm. "You starting to believe that mass demonstrations can change the narrative?

"I am, I'm beginning to see it, but they have to have massive movements, not just demonstrations, focused, organized, and relentless, and they have to have a clear goal in mind. They have to shut down commerce and governments. I want to believe that there are groups out there that believe that and are working toward that end."



55

19 March 2029 Monday
Washington D.C., U.S.A.

Jeffrey Bornestein, CEO of oil giant, Chevron, was on the phone with Senator Mark Lochridge. His distinct Texan drawl and self-assured tone left no doubt about his pompous nature. “I think we did rather well at the last COP Meeting, Mark,” Bornestein bragged. “I think we came out of the Conference smellin’ like a rose. We used to feel unwelcome, but, in the last five years or so, we’ve really cozied up. We’ve actually come to embrace these Conferences.”

“Well, you seem to have, Mr. Bornestein, you had a massive presence there,” Mark replied. You must have had a couple thousand lobbyists in attendance.”

“I believe the number is 3,257, more or less, but who’s countin’.” Bornestein joked. “Listen, Mark, I want to thank you for all your support, you’ve been a special friend to the fossil fuel industry for a lotta years, especially your work recently paring back the methane emissions tax. We all felt it was a bit too excessive, almost punitive. It was cutting into our bottom line, and you know how meager that was this past year.”

“Yes, sir, a paltry $28 billion. That must have hurt.”

They both laughed.

“I see you came up with a new strategy to muddy the waters.”

“We sure did,” Bornestein bragged. “What do you think of it? We got tired of fighting those fuckin’ environmentalists – and the

fanatical climate scientists. If ya can't beat 'em, ya might as well join 'em. We're now talkin' low carbon, low emissions, and no emissions. Phasin' out emissions. We get 'em thinkin' about emissions, not oil or gas or coal. Emissions are the problem, not the fuel source. Makes sense, right? If we get rid of emissions, we can burn all the damn oil, 'n' gas 'n' coal we want."

"But didn't you agree to phase out coal? Coal use is supposed to fall below 80% of 2010 levels by 2030. That's going to hurt *my* bottom line."

Bornestein leaned back in his chair and looked at the paintings on the wall. "Look, that's just not goin' to happen, Mark. That was the Paris Agreement. It's already 2029, and nobody's even started. India's still usin' coal. China's still usin' it. OECD nations were supposed to stop by 2030, an' plants are still burnin' it. Not goin' to happen. On top o' that, we got an Agreement to start phasin' coal out by 2035 because 2030 is no longer feasible. The Paris Agreement called for shuttin' down all coal-fired stations by 2030. We got them to agree to 2040. So, we pushed it out further. We're lookin' out for you, Mark. We'll still be burnin' coal in 2040."

Bornestein sat up in his chair, leaned forward, and poked his right index finger hard on his desk three times. "What we do have to fuckin' worry about is damn wacko's blowin' up oil refineries. That can't keep happinin'. We're goin' to have to raise the price of gas at the pumps. The President's not goin' to like that. That Exxon refinery processed more than 600,000 barrels of crude a day. Seventeen workers were hurt. Wouldn't a been as bad except a leakin' pipe blew after bein' hit by shrapnel from the power station explosion."

"I've talked to the President about that, and he assures me that he will make a strong public statement about that."

"It's in his best interest to," Bornestein warned. "Anythin' else?"

'There is more unrest worldwide after the COP Agreement. People are angry, and increasingly so. They're getting impatient. They want more progress on climate and desperate for a vaccine. Demonstrations and protests are on the rise."

"That is a little worrisome, I have to admit, but it may be just temporary, Mark. The masses are gullible, an' don't have much stayin' power... and that's a fact. You feed them a narrative that's believable, and keep pushin' it, eventually, it becomes reality. Especially if they want to believe it – need to believe it. People

don't like change, especially when it includes hardship, and when they won't even see the fruits of their sacrifice. They don't give a shit about their grandchildren. They want to hold on to the good life now. If we can promise them they can keep their big screen TVs, bass boats, an' Disneyland, they'll grab onto it like a dog with a fuckin' bone. In other words, Mark, if we convince people they can keep their comfortable lifestyles..."

"And save their children..." Mark interjected.

"and save their babies, by capping off a few leaky pipelines and sucking carbon out of the air, they'll believe it... because they want to believe it."

Mark continued the narrative. "A richer, more powerful nation guarantees a stronger economy, more and better jobs, will be more secure, and will be able to mitigate and adapt to climate change better, and produce a vaccine faster."

"Exactly. You got the idea. Tell 'em that we know fossil fuels have to be phased out eventually, that we believe renewables are the future, too, and we're investing heavily in it..."

"At least 3% of your income..." Mark interjected, again.

Bornestein ignored the remark. "We will continue to invest in renewables and clean tech, and when the time is right, we'll transition over. In the meantime, fossil fuels are our best option. They're cheap, safe, reliable, and secure.

"We need to stay the course, Mark, and everyone will benefit, and continue to enjoy the good life. It's OK to overshoot a bit – the scientists agree – and, as long as we reduce emissions, it'll come down again. We'll develop better adaptation an' mitigation strategies to protect everyone..."

"Might be money in that, too," Lochridge added. "And when the time is right, we can make an easy transition. Everyone benefits."

"Couldn't have said it better myself. See, all you have to do is keep pushin' that narrative." Bornestein slapped the arm of his chair and laughed. "And we're in the best position we've ever been in to sell it. A Republican President and Republican majorities in both houses."

"And we have a friendly Supreme Court," Mark added. "State legislatures in most states are now Republican controlled."

"Seems like you've got all your bases covered."

"We think so... but there is always a chance things can go sideways.""There always is, Mark. You just have to maintain

control. You can't take your foot off the pedal.

"Is there a Plan B if the masses can't be controlled?" Mark Lochridge asked.

"There's always a Plan B, Mark. There's always a Plan B."

Senator Lochridge waited for Bornestein to elaborate on what Plan B was, but Bornestein remained silent. Lochridge had an idea what Plan B was, though. The super-rich had been making plans for years to ride out tough times or just gain independence from government oversight. Those with $5 million to $10 million to spare could invest in maximum security, self-sufficient residential communities that were tucked away in remote locations around the world, unfindable, and guarded by ex-Navy SEALS, complete with private firefighters, doctors, and state-of-the-art health facilities.

For those with $60 to $100 million to spare, who shunned societal interactions or craved independence and privacy, there were luxury bunkers, such as those built by Oppidan, replete with artificial daylight lighting, theaters, pools, bowling alleys, and accommodations for valuable paintings and sculptures, as well as a collection of vehicles. It was possible to survive in luxury, albeit with dehydrated and freeze-dried food, for up to 10 years in a bunker without a resupply.

The ultimate escape for the super-rich was complete autonomy. No government oversight at all. The concept, called seasteading, involved the establishment of permanent autonomous ocean communities, each with a different form of legal system. Interested parties would join one whose laws they were ideologically aligned with. If they later became disenchanted with their choice, they would merely pull up anchor, sail off, and try another.

"Anything happening in Canada yet, Mark? What are you hearin'?" Bornestein changed the subject.

"I hear they're beginning to put in roads and securing a perimeter. It's going to take a lot of fencing to enclose the area. The ground is still frozen in a lot of places, so progress is slow. As soon as the ground thaws, work will speed up."

"They gonna be ready to harvest later this summer?""I believe so. Money is coming in from every major country, and the Canadians have the manpower. The EU has offered equipment, personnel, and expertise. I think the Canadians will accept some help but prefer to handle most of the preparations themselves.

"The Indians givin' 'em any problems?"

“The Dene are unhappy, but they’re going along with it for now. They, and the rest of the Indigenous world, wanted more negotiating power at the COP but didn’t get it.”

“They’re lucky we don’t take the rest a’ their land ‘n’ ship ‘em off to some damn island at the top of the world. They’d still be living in caves if we hadn’t shown ‘em how to build a house. They’d still be suckin’ on raw fish ‘n’ freezin’ their asses off if it wasn’t for us.”

Lochridge was feeling a little uncomfortable with Bornestein’s racist rhetoric, but said nothing.

“I think we can strike a deal with the Canadians, anyway, to get a steady supply of the anti-viral when it becomes available. I’ve got Prime Minister Bergeron’s word on that. I’m goin’ to need it, too. I’ve got eight gran’children to get vaccinated. Prob’ly vaccinate the adults, too. That’s a shitload o’ mushrooms.” Bornestein laughed heartily again. “Mark, you’re a grandfather too, aren’t you? You got a little grandson, right? You need to work somethin’ out with Bergeron, too.”

”Yes, sir. We’re working on it.”

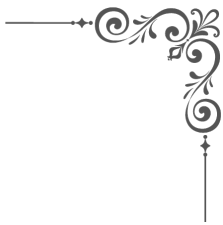
“Anythin’ else, Mark, cause I’ve got a shareholder meetin’ comin’ up in another few weeks, I need to prepare for.”

“No, sir. That’s about it.”

“Well, thanks for the update, Mark, and again, thanks for lookin’ out for us. That gas tax was killin’ us. We’ll be sure to take care of you when it comes time for re-election.”

“Yes, sir. You’re welcome. Anything I can do for you, just… ”

Bornestein had already hung up.



56

20 March 2029 Tuesday
Canberra, Australia

Dr. Jennifer Hemsted was exhausted both mentally and physically. She and the entire medical staff at the Centenary Hospital for Women and Children had been coping with stress, depression, and burnout for two years, struggling to save newborns, infants, and young children, watching them suffer slow, agonizing deaths, despite their best efforts, and having the best medicines and modern technology available.

She was not alone. The same tragic story was playing out in countless hospitals in cities around the world. But health care workers everywhere were dedicated people, and they kept trying to save lives, no matter how difficult that might be, continuing to fight for every child, to save every child they could.

On this morning, just as she had done hundreds of times before, Dr. Hemsted had gathered around her a group of first-year residents, ready to take them on rounds. It was 6 am, and she was anxious to get started because there were quite a few patients to see.

“All the patients you will see this morning are suffering from RSV. They range in age from newborns to 5 years old. Some are holding their own, most are fighting for their lives. A few will overcome their infections and go home, but most, 95% of them, will die. We will see them all, learn their recent health history, and their

treatment programs. Make sure you observe all sanitation protocols. Keep your masks and protective clothing on throughout the rounds, and sanitize hands thoroughly between patients."

Dr. Hemsted asked if anyone had any questions. No one spoke up. "Alright, we'll first start at the NICU."

Dr. Hemsted led the residents to the wing where the youngest patients were being treated. The group passed through the viewing area of the NICU, walking behind parents who were gathered, straining to see their own newborns through the long, windowed wall, struggling to maintain their place among the living.

Once she reached the door to the ward, she checked to see that all the residents were wearing protective clothing and masks, then opened the door and entered the ward, followed by the residents. Once inside, the residents stood, transfixed, silent. The tragedy of the RSV pandemic was stark and clear. Desperately ill infants filled the ward to capacity, most confined to incubators or tents, artificially kept alive by means of IV tubes filled with hydrating fluids and medications, feeding tubes carrying nutrients, oxygen masks or nasal prongs, taped to their arms, legs, and heads, and monitors to measure oxygen levels, temperature, medication levels, heart function, and respiration.

The conditions within each tent or incubator were stringently controlled and closely monitored. Nurses and attendants moved quietly from infant to infant, checking monitors, replacing bags of saline, medications, and nutrients, checking tubes and IV lines, and suctioning mucous to help infants breathe. The collective crying, coughing, and wheezing was incessant, oppressive, and overwhelmingly sad, weighing heavily on everyone.

Here and there, a heart monitor would signal the end of a life, with its steady, unmistakable pitch. Quickly, the monitor would be turned off, the lack of a heartbeat confirmed with a stethoscope, and the infant covered; the time noted. The parents outside in the viewing area would, almost universally, react with overwhelming grief, sobbing quietly, or wailing aloud. Other parents would all turn to consider the passing and embrace one another in shared grief.

The young residents, overcome with sadness, were unable, at first, to maintain composure. They hadn't expected to be affected so deeply, and looked to one another for emotional support. One resident left the unit and, after a few moments, returned.

“Are we making any progress at all in keeping infants alive once they’re infected?” Asked one of the residents. “These seem to be the same methods we’ve been using from the beginning, and they don’t seem to be helping in any way anymore.”

“You’re right, Dr. Riley,” Dr. Hemsted replied. At this point in time, we have no better treatments available to us. We can, of course, keep the newborns isolated, but doing so over an extended period of time is impossible for many reasons. And in most cases it is a moot point, anyway.” She turned to one of the residents. “Why is that, Dr. Gupta?”

“The mother was carrying the virus when she gave birth.”

“Right, and why is that important, Dr. Martin?”

“The mother can pass RSV to the fetus through the placenta.”

“Correct.”

Dr. Hemsted started to make her way through the NICU, followed by the residents. She looked at each infant, stopping here and there to check charts, look at the monitors, talk to the attending nurses, and make changes to treatment regimens. She had the residents participate in checking vitals. One infant in a tent was clearly in distress – crying, shaking, waving her arms about, very congested, and wheezing badly. Dr. Hemsted checked her vitals, talked to the nurse who was adjusting the IV drip, seemed satisfied the infant was in no immediate danger, but needed a suctioning to clear her airway. Dr. Hemsted instructed the nurse to do the suctioning, then moved on.

Dr. Hemsted turned to another resident. “What complications is the pregnant mom at risk for if she is carrying RSV, Dr. Williams?”

“Preeclampsia and pre-term labor – and the baby may have a lower birth weight, and could be at risk for lung disease later on...” Dr. Williams stopped mid-sentence, closed her eyes for a moment, and put her hand to her mouth. She realized that was old normal. Most infants with RSV would never live that long. “I guess that’s not wholly true any longer.”

“True, Dr. Williams. The fetus will be infected by RSV passed through the placenta from the mother, and will be at risk of dying from the moment she is born. Dr. Patel, what are the symptoms of pre-eclampsia?”

“High blood pressure, protein in the urine, headaches, vision problems, like blurriness, flashing lights, and light sensitivity, pain in the upper right belly or shoulder, nausea, vomiting or dizziness,

shortness of breath, weight gain, or not feeling the baby moving normally."

"When do these symptoms usually make themselves known, Dr. Martin?"

"Usually the second half of the pregnancy... or after giving birth."

"Good," Dr. Hemsted said. "You've all been studying. You will need it."

Just then, a monitor signaled the end of another life. Everyone in the room stopped and looked in the direction of the sound. They watched as a nurse walked to the monitor and turned it off. He stood for a moment, next to the crib, looking down at the unfortunate infant, then checked for a heartbeat and, finding none, looked at the clock, and noted the time of death. Another tragedy.

Dr. Hemsted gathered the residents together, told them they needed to move on to the older children, those up to the age of five. After leaving the NICU, she stopped at the Nurse's Station, wanting to address a question she was asked earlier, and felt she hadn't answered completely.

"Dr. Riley, you asked me before if there was anything else we could do for these infants, any new techniques, or if we were just stuck using the same old methods that aren't working anymore. The point is that we do already have techniques in place that could save many more lives, that could reduce the death rate significantly. And that's simple sanitation.

"If we can isolate the infant immediately after birth, and both the mother and infant test negative for RSV, and we start the infant on intramuscular Beyfortus, we have been able to prolong life. The problem is that, at some point, we have to release the infant to the parents and expose the infant to the outside world. We can't keep the infant here until it's five years old. That's when we can lose the child.

"There is so much resistance to simple sanitary measures - masking, washing, disinfectants, isolation - from people who are more concerned about their own personal inconvenience than they are about the life of a child, that the child is inevitably going to be exposed to the virus at some point, and that's why 95% of them will die before they reach the age of five. We see so much needless death here, every day - deaths that could have been prevented if only people would show compassion for one another. What's

making your job infinitely harder is the callous selfishness of individuals who put their right of self-choice above the rights of infants to live a safe, healthy, and full life. No child should die because wearing a mask is inconvenient to someone else."

Dr. Hemsted felt a small measure of relief venting her frustration with the politicization of medicine that was wearing thin her patience for human nature.

"Do you think the fungal anti-viral will work?" Dr. Patel asked.

"From everything I have read," Dr. Hemsted answered," and from the experts I've talked to, I believe the anti-viral will work. It *will* save lives. It's been protecting Indigenous children for hundreds, possibly thousands of years. It's been a staple in their diet, and when RSV came along, it did protect them.

"Alright, people, we need to pick up the pace a bit." Dr. Hemsted motioned for them to follow her to the children's ICU. "We still have a lot of patients to see."

The scene outside the Intensive Care Unit was one of controlled chaos. Beds and stretchers with children were everywhere – in front of the nurse's station, in the waiting rooms, in the hallways, filling up every available space. Bags of fluids hung from IV stands next to the beds and stretchers, and plastic tubes snaked their way down from the bags, finding their way into the veins of ailing children. Nurses, CNAs, doctors, lab technicians, orderlies, and other staff were busy moving patients, looking at charts, changing fluids, checking vitals, adjusting or adding oxygen masks, and checking monitors. Parents, their faces grim, stood watch over their children, propping themselves up against walls, sitting exhausted on chairs, trying to catch a few moments of rest.

The nurses had been struggling for more than a year now, trying to keep up with the relentless flood of sick and dying children. They were picking up extra shifts, coming back early from maternity leave, getting friends and family to watch their own kids so they could spend more days and nights tending other people's kids. They were physically and mentally exhausted. Drained from the unrelenting stress. And yet, somehow, they kept coming in, doing what had to be done, saving lives where they could.

The most critically ill patients were inside the ICU. Dr. Hemsted reminded the residents to don fresh protective clothing and masks, and once they had, she led them in. The situation inside was just as heart-wrenching. A nurse had just finished covering a child, a girl

about 3 years of age, who had just passed. The nurse sat down in a nearby chair, leaned forward, her elbows on her thighs, and covered her face with her hands.

She cried quietly for perhaps ten seconds or so, when another nurse sat down beside her, put her arms around her, held her tightly, and cried with her. They wiped back the tears, composed themselves, got up, embraced again, and went back to work.

"Doctor?" A nurse called out to Dr. Hemsted. She was standing over a patient, another girl, perhaps four years old, who was being intubated. The girl, lying on her back, was motionless, except for the slow, steady rise and fall of her chest as air entered and exited her lungs. Her eyes were closed. Her parents were at her bedside, her mother holding her hand, tears rolling down her cheeks.

Dr. Hemsted walked back to the bed, followed by the residents. The nurse told Dr. Hemsted that the girl had been slowly declining overnight. Dr. Hemsted, three days ago, had taken her off the ventilator to see if she could breathe on her own, but she had been unable to do so, owing to worsening bronchiolitis and pneumonia. Her parents asked for a few more days with her, and Dr. Hemsted agreed. But now the child was failing, even with the added oxygen. The girl's parents had come again to a point where they would have to make a gut-wrenching decision.

"I think it's time," Dr. Hemsted said softly to the parents. She could see the anguish in their faces, and she could feel their pain and desperation. "She has fought a brave battle – a very tough battle. You can be proud of her. She has given her all, but we are doing more harm now than good. I think we need to take her off the ventilator and see how she does. But I don't think it would be fair to her to put her back on it again if she cannot breathe on her own. We would be just prolonging her suffering. I'm sorry."

"We have to let her go," the girl's father said as he looked into his wife's eyes, profound sadness in his voice, tears welling up in his eyes. He held her hands in his. She looked up at him and nodded, tears flowing down her cheeks. They turned to Dr. Hemsted and gave her permission to remove their daughter from the ventilator.

Dr. Hemsted explained to the girl's parents that they would make her as comfortable as possible, so that she would no longer have to struggle to breathe. Then she nodded to the nurse, sadness filling her whole body.

The nurse added morphine to the IV drip and then disconnected

the ventilator and removed the intubation tube.

Mom and Dad leaned over their daughter and kissed her and whispered in her ear. They held her hand and watched as her breathing slowed, each breath more shallow than the last, until finally she breathed her last.

57

22 March 2029 Thursday
Muir Woods National Monument
San Francisco, California U.S.A

James deBrum, Chair of AOSIS, immediately after the closing of COP33, had extended an invitation to Russel Penkay, to meet with him to discuss how AOSIS and the AFN might cooperate to force the world's wealthiest countries to commit to the Paris Accords and end fossil fuel use. The disappointing COP33 Agreement fell far short of what they had hoped to achieve, and "spelled an extraordinary failure in foresight that might literally bring about the end of civilization as we know it." The RSV Pandemic would, without a vaccine, depopulate every country on earth, and Climate Change would transform the earth into an uninhabitable hell. It was imperative that an extraordinary reversal in mindset be orchestrated.

The two men agreed to meet in San Francisco, USA, to explore ways in which they might carry out such a reversal in thinking. They both knew they had little time in which to act.

Russel Penkay chose Muir Woods National Monument for their meeting. He thought it an appropriate site for planning a return to traditional thinking, what he hoped would be a re-connection to the land. Muir Woods National Monument is part of the Golden Gate National Recreation Area, located near the southern end of Mt. Tamalpais, in the Marin headlands, a hilly peninsula north of San

Francisco, and connected to the city by the Golden Gate Bridge.

What makes Mt. Tamalpais impressive is not so much its height, at 2500 feet, but its ancient relationship to the area's first immigrants. The mountain and the lands adjacent to it are the homeland of the Coast Miwok people, who have fished, hunted, farmed, and stewarded the area for 10,000 years. The Miwoks were there when Sir Francis Drake's ship landed in 1579. The Spanish colonized the area in the mid 1700's, pushing the Miwoks off their land, and built missions with Miwok labor, forcing them into servitude. By the early 1800's, their way of life was nearly extinct, from forced labor, introduced diseases, and western societal indoctrination programs.

During Mexico's occupation, some land was given back to the Miwok People, only to have most of it taken away again through land grants. In 1861, under United States occupation this time, the U.S. Congress introduced legislation that ended all tribal rights to land ownership. By 1880, there remained only 36 Miwok people, down from thirty to forty thousand original inhabitants when Drake stepped ashore three hundred years earlier.

In 1920, the U.S. Bureau of Indian Affairs bought 15 acres of land in Graton, California, lumped the Marshall, Bodega, Tomales, and Sebastopol Indians into one group, formally recognizing them as one tribe, the Graton Rancheria, and granted them the land in a trust. Four years later, Congress granted U.S. citizenship to all Native Americans.

The United States reneged on tribal recognition three decades later, terminating 41 California Rancherias, including the Graton Rancheria, through the California Rancheria Act of 1958. The land was removed from the Federal Trust and distributed to three different private owners, without regard to the rights of the Miwoks.

Through patience, perseverance, and tenacity, remaining tribal members, operating as the Federated Indians of Graton Rancheria (FIGR), convinced the U.S. Congress to reverse their decision, and in 1997, Congress recommended immediate restoration of three tribes, one of them, the FIGR. In 2000, U.S. President Bill Clinton signed legislation restoring the land to the FIGR. Unfortunately, since the original land had been distributed to individuals, and they were deceased by this time, the only land the tribe received was a 1-acre tract that had been owned by a Miwok family.

Muir Woods National Monument is a special, almost spiritual place, filled with giant redwood trees that grow to 300 feet high and 25 feet in diameter, with a lifespan of 2000 years. The giant redwoods grow so tall that their tops can disappear into the coastal fog that is often present. Walking among them can be a humbling experience.

The park very nearly didn't exist. Two hundred million years ago, redwoods could be found growing throughout the northern hemisphere. Before logging began in the 1850's, there were nearly two million acres of coastal redwoods growing in a narrow strip along the west coast of the United States, from Big Sur, in southern California, to the Oregon border. By the early 20th century, most of the trees had been cut, leaving only small stands scattered here and there. William Kent, a politician and conservationist, and his wife, Elizabeth Thatcher, alarmed at the prospect of losing such magnificent trees, purchased 611 acres near Mt. Tamalpais. When a local water company threatened to erect a dam on Redwood Creek, the Kents donated 295 acres to the federal government, with the stipulation that it be protected in perpetuity. United States President Theodore Roosevelt, in 1908, set the land aside as a national monument.

Russel Penkay met James deBrum early in the morning, just after sunrise, in Cathedral Grove. Cathedral Grove contains some the oldest and biggest trees, and an area dedicated to quiet and meditation. The two men clasped hands and smiled, happy to see one another again. They had grown close during the COP33 Conference and spoke often in the ensuing two months, talking about life, ancient times, ancestors, and the current state of affairs.

"It is sad, my friend, that we should meet in such sacred surroundings, among ancient relatives, to discuss such grave issues for our world," James said as they sat on a park bench.

Russel looked up at the redwoods that surrounded them. "These gentle giants have witnessed much, James. They stood no taller than my grandchild when this land knew only the Miwok. Life was good. There was plenty for all. They shared the land in harmony and respected each other. They helped each other."

"It was a different time, Russel," James replied, as he gazed upward. "A slower time. We have lost our way. We have not followed our hearts; we have not listened to our ancestors. We must find our way back again. We must find our way back for all of

humanity, or Mother Earth will surely send us back. And it will be hard."

They could both feel the trees' presence, their plight, their call for help.

"When last we spoke, at the COP," Russel said, " you said you had some ideas how we might re-establish our natural connection to Mother Earth."

"We are now at an inflection point, Russel. Probably the most important one in all of human history. We have two possible paths forward. The path we are on now will lead to the destabilization of the environment and population collapse, and ultimately, to our own demise, as well as the loss of all those beings we share the Earth with. The second path is one of intervention. It is crucial that we follow the second path, toward balance and equality."

James turned toward Russel. "Since COP33, there has been vocal and widespread public outrage and disappointment in the scientific community over its failure. As you already know, all members of the Small Island Developing States, as well as Indigenous Peoples organizations worldwide, including your own Assembly of First Nations, have condemned the COP33 Agreement. In fact, the Conference of the Parties, as an organization, has failed as a vehicle for change. Although it has succeeded as a centralized repository for climate change information and as a means for thousands of climate scientists to gather and exchange information and ideas, it has failed in its role as an organization to effect change."

James, trying to control the nervous energy that coursed through his body, stood for a moment and looked out toward the massive redwoods that surrounded them. Then he turned back toward Russel and sat down again.

"Governments around the world are trying to quell concerns that we will lose the Anti-viral Complex to advancing temperatures. They are doing their best to convince the world that emissions phaseouts will work. In reality, they are only doing the bidding of the rich who line their pockets to maintain the status quo.

"The lower classes are of no worth to the rich capitalists other than as a low-cost supply of labor and as a market to sell goods back to at inflated prices, convincing us we need things we have no use for, just to keep the system going. They have used every tool at their disposal to ensure that wealth flows in only one direction. And that arrangement serves only them, and to broaden inequality and

worsen life for most. Do you see, Russel… the rich have no incentive to change the system? They are already happy and healthy – and they are not concerned about us or about equality. It is to their benefit to maintain an unequal balance."

"I know, James. It saddens me to know there was a time when we labored for ourselves and got the full value of our work. We were once independent and controlled our own lives. We are no longer happy because we are no longer independent."

"Exactly. Policy makers pretend to be working for us, to make our lives better. But, in reality, they are working for the wealthy class. They will continue to do so as long as it is in their best interest. Their shortsightedness will be the undoing of us all. In the end, they will lose everything, too. Even the rich will lose everything in the end. They seem unconcerned about their grandchildren's future."

"James, what are you proposing?" Russel asked, impatient to get to the reason for their meeting, though he had suspicions.

"Policy makers will not enact just laws for altruistic reasons. They will do so only for reasons that benefit them. So, we must give them a reason. We cannot pay them off, but we can use fear. I propose a three-pronged approach, Russel. First, the use of mass demonstrations. Sustained, focused mass demonstrations have proven enormously effective in changing unpopular policies throughout history. Second, deny Developed Nations access to the ports and the resources of all Small Island Developing States, through their Exclusive Economic Zones and, also, the resources of the African Union. That will cripple trade and supply chains globally. Third, deny access to the Anti-viral Complex. That will threaten worldwide population stability."

"Those are ambitious goals, James." Russel was surprised by the extreme measures James was proposing, although he did not disagree with them. "Do you think you can carry out such a plan?"

"We must, my friend. We are at the end of the line. We have no other options open to us. If we do not force change, convince policy makers that it is in their best interest to chart a new course, we will have nothing left to save. Change will be forced upon us, and we will have no control. We may be the first to go, but the rich will surely follow us in due time. None will be spared."

"Have you spoken to the other members of SIDS, the African Union, and to the members of the AFN about such a plan?"

“I have floated the idea… in conversations, to a great many members from both organizations. Most – more than enough to carry out such a plan – feel that it is our only hope, and have agreed to participate. And now, I am asking for your help, Russel, and the help of the AFN, because control of the Anti-viral Complex is critical to the plan’s success.”

“You know such a plan is very dangerous, James? Many lives will be lost in this quest.”

“I do, and I would not attempt it if I didn’t think it was absolutely necessary, my friend. But the stakes are enormous, Russel – you know that. We have the opportunity, maybe our last, to bring humans into alignment with all other living beings and with the flow of natural processes of Mother Earth. We cannot refuse to try.”

Russel stood up. He looked outward toward the trees, contemplating the seriousness of what James was asking, what it would mean to withhold a life saving medicine to children, what the reaction of the world would be. He silently asked the trees for their counsel. He was nervous, but also felt a rush of excitement and hope, feelings he had not felt in a long time. Could such a plan work? Could true change be possible? His heart was pounding. He walked out to the far side of the path and stared at the silent giants, waiting for their reply. He could feel their anguish, their cry for help. He stood silent for a few moments, listening, hearing their counsel. Finally, he walked back to his friend, passing by park visitors who had come to pay homage to the redwoods. He sat down next to James.

“How do you propose to carry out such a plan?”

James was relieved. He knew Russel was, at least considering the plan.

“There are now demonstrations taking place around the world, but they are sporadic, unconnected, unfocused and lack organization. We must organize and guide them, transform them into a Global Peoples Movement, and focus their demands on policy makers. The Movement must be massive, disciplined, sustained, and, if necessary, disruptive, to bring economies to a halt. It must continue until the demands are met – by all governments around the world. We must promote strikes and work stoppages in support of the Peoples Movement. We will build a network of volunteers who will organize and coordinate mass demonstrations in every

country. Those demonstrations will be the backbone of the Movement. They will put enormous pressure on policy makers. It will be imperative that the people who demonstrate understand the importance of the movement, that they believe in it, and believe it is our only hope of avoiding total collapse. They must understand the consequences of failure. If they understand, they will have the passion to succeed."

James briefed Russel on the second of the three pressures they intended to use against the world's Developed Nations. Small Island Developing Nations and the African Union member countries would threaten to deny access to their ports, foreign military bases, and their land-based and marine natural resources. They realized doing so would put not only tremendous strain on their economies and hardship on their populations, and might place them in danger if the Developed Countries decided to use force. But continuing on the current path would almost certainly lead to an even more dangerous future. They felt the people had had enough, and were willing to support such extreme measures and endure hardships to secure a better, healthier, and more equitable future.

The SIDS nations, though occupying a very small percentage of the earth's land mass, controlled 30% of the world's oceans through their Exclusive Economic Zones, and that meant they also controlled all the natural resources that lay within those zones. Metallic deposits containing cobalt, manganese, titanium, nickel, and iron in deep-sea hydrothermal vents were of particular interest to industrialized countries. In addition, denying access to their deepwater ports would throw global supply chains into chaos.

Africa, the second largest continent after Asia, is rich in natural resources. Its early history was dominated by European and North American colonial powers, who exploited the native populations to extract those resources to enrich themselves. Decolonization in the early to mid 20th century led to the creation of many independent nations, though they still remained tied to the influence of their previous overlords.

They began to strengthen their positions later in the century and into the early 21st century. Their natural resources included forestry and

fisheries, farmland, and large mineral reserves, which are still important to the West. The waters off the West African coast are some of the most productive regions in the world. Africa has 40% of

the world's gold reserves and 90% of its chromium and platinum reserves. Thirty percent of the world's mineral supply comes from Africa.

The African Union (AU) was established in 2002, joining together 55 states, to push for complete decolonization, rid the continent of apartheid, safeguard the sovereignty of its member states, and unify and strengthen Africa's economic position in the world. After the failure of COP33 to craft an Agreement to phase out fossil fuels and transition to a "just economic and energy system", the AU member countries agreed to join SIDS and other Developing Nations, as well as Indigenous groups worldwide, in using their resources to pressure Developed Countries to reverse their position on fossil fuels.

"That brings us to the Antiviral Complex, my friend," James said. "It is possibly our most important bargaining chip. But it is a difficult one, both for me to ask you, and for you to carry out. Do you think that you can prevent its harvest?'

"You are asking me to murder millions of children, James." Russel was surprised that James would even consider such a morally reprehensible act. "Withholding the antiviral would mean purposely keeping a life-saving medicine from countless children. I would not withhold it from my own grandchild, or from the children of my people. And what about your people? Would you withhold it from your people – your grandchildren?"

"I have given it a lot of thought, Russel. It has caused me great anguish. I do not wish harm on anyone, especially children. But think, Russel, what will happen if we continue to go down the path we have been on? Those deaths will happen anyway. The temperatures are rising rapidly. It is only a matter of time until the Complex shuts down. There are even now indications we are close to a shutdown.

"It may be a moot point," James continued. "There will be no vaccine for years. It is not we who are killing our children, but the Wealthy, who refuse to give up their yachts, their rocket ships, their planes, their multi-million dollar homes, and lavish weddings and vacations. It is they who are killing our children. If we choose not to withhold the anti-viral and they refuse to go down the right path, they will be killing the children. If they refuse to change their ways, if they refuse to give up that which is slowly killing us all, and all those beings we share this world with, it is they who are murdering

children. They have a choice, James. They can choose a system that is fair to all. They can choose life."

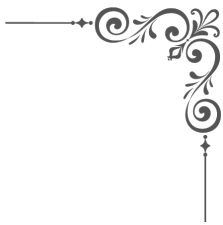
James stood up, unable to contain the nervous energy welling up in his body, walked a few paces forward, then turned and walked back to Russel. "I would not ask you to do this if I did not think it was important, Russel. It may be our last hope before everything is lost."

James sat back down next to Russel on the bench. The two friends sat in silence for what seemed an eternity. Russel was deeply troubled by the moral dilemma he found himself in. But he also knew that James was right. If they did nothing, it was a certainty that life would become unbearable eventually. Lives would be lost anyway, probably many more. Of that, there was no question. There were no good options, only bad ones, and very bad ones.

"I will see what I can do, James," Russel finally said. The trees had counseled him, and he knew he was doing the right thing.

James felt enormously relieved and grasped his friend's hand in both of his. "Thank you, my dear friend."

"It must be a last resort, though," Russel said. We must do all in our power to change the minds of the politicians with the first two options. If they fail, I will carry out the third."



58

Bangladesh's roots are inextricably tied to the fall of Britain's 300-year colonial presence on the Indian subcontinent. When the British, strapped for money after World War II, could no longer oversee their colony, it partitioned the area, creating India and Pakistan, and then hastily withdrew.

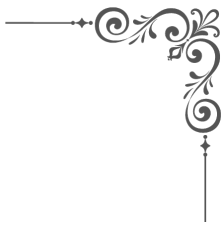
Pakistan, though one country, was divided into two provinces, West Pakistan and East Pakistan, separated by the 1000-mile breadth of India. Governing the two provinces as one proved exceedingly difficult, and over the next two decades, West Pakistan advanced economically and technologically at the expense of East Pakistan, which remained largely a poor agricultural and fishing economy. Ideological, cultural, political, and linguistic differences also contributed to a growing rift between the two provinces. Relations between East and West continued to deteriorate, while calls for secession in East Pakistan grew louder. The rift between the two erupted in armed conflict in 1971 and, with the assistance of India, East Pakistan successfully seceded and gained independence, becoming the new nation of Bangladesh.

Bangladesh's textile industry is a story of serendipity, potential, and promise gone awry, of the hope for a better life crushed by the weight of greed and indifference.

Although Bangladesh had gained independence, not much changed. The people remained poor, without any prospects for improvement. Bangladesh received some income from the export of jute, but the population continued to depend heavily on agriculture

and fishing. Other countries in the region, China and South Korea in particular, were transforming their economies by providing cheap labor to western businesses that were looking to cut costs and improve profit margins.

By the early 1970's, the exportation of jobs overseas by the United States and many European Countries began to threaten the livelihood of their domestic workers. In response, U.S. President Richard Nixon and European leaders agreed to limit the amount of goods foreign countries could sell to them. Fortuitously for Bangladesh, South Korea had reached its limit, and South Korean giant Daewoo, wanting to continue selling to Western countries, made a deal with Bangladeshi businessmen to set up a textile factory in Bangladesh. That was the beginning of the garment manufacturing industry in Bangladesh. Today, four million people, more than half of them women, work in the country's 4,000 estimated garment factories. Bangladesh is the second-largest garment-producing country in the world, after China.



59

26 March 2029 Monday
Dhaka, Bangladesh

Tanisha Sarkar was used to the heat. Well, maybe not used to it, but used to enduring it. She sat at a table, along with 135 other workers at Shinzing Garment Factory, bent over an antiquated sewing machine, stitching together a pair of jeans. She was nervous, but she was also angry.

Tanisha was born to Sujon and Salma Sarkar in Burichang Upazila, in central coastal Bangladesh, south of Dhaka, near the border with India. After the widespread flooding in eastern Bangladesh in 1999, Sujon and Salma lost almost everything - their home, their land, their livelihood, all their belongings, and the life they had struggled so long to hang on to. Like so many other farmers in the delta, they had endured years of floods and unrelenting heat. The stress of living on the edge of starvation had taken its toll. After the flood that year, with no money and a child to feed, they had no choice but to move to Dhaka, to find employment and stability, and provide what they hoped would be a better life for their year-old daughter.

In Dhaka, their lives improved, but only marginally. Tanisha's father found work as a city sewer cleaner while her mother took charge of the home and Tanisha. Sujon's job was dirty and dangerous. During the monsoon season, the city flooded at least once a week. Sujon was part of a workforce tasked with keeping the

sewer drains cleared – a nearly impossible job under the best of conditions. When the rains came, the sewer workers would put their lives at risk clearing drains plugged with muck and garbage. To prevent being swept into the drains by the raging water, lifelines were critical. Sujon lost two co-workers in 2004 when they, in their haste to clear a drain, forgot to tie off a line and were swept into the hole. Frantic bystanders used picks and shovels to dig the workers out, but by the time they got to them, they were dead. Sujon never forgot the incident.

Tanisha was a bright child growing up, quick to learn, and inquisitive. She was good with numbers and excelled in school. As she grew she became a favorite of her teachers, often helping them prepare lessons and tutoring classmates. Her self-assuredness and self-confidence, and her empathy for others, earned her the respect of all her young peers, and prompted one teacher to predict she would one day become a leader in the community.

All that potential would, one day, at the age of fifteen, evaporate when she was betrothed to a boy three years older than she. Though there were laws against betrothal, the practice was still alive and well, especially among Bangladesh's poor, and the ban was seldom enforced. To avoid having to pay a high dowry, something her parents could not afford, Tanisha was married off to a neighbor's son.

The marriage was short-lived, but resulted in the birth of one child, a boy named Dalim. Tanisha's husband was irresponsible and immature, and intellectually inferior to Tanisha, all of which led to him becoming abusive and later abandoning her and Dalim. Tanisha later lost her son to RSV.

Tanisha was nervous because she and 135 of her co-workers at Shinzing Factory were about to walk out in protest. Her friend, and leader of the protest, Kajiri, had set 9 am, three hours into their shift, as the time of the walkout. It was supposed to be a coordinated walkout by thousands of workers from factories all over the city, the biggest one yet. Tanisha looked up to the second level, to where the factory offices were. She was angry that the people in those offices, the owner of the factory, in particular, had let the situation come to this. The workers on the floor, the ones who did the actual work, stitching together garments for big retailers like Versace, North Face, Gap, and Walmart, had to work under appalling conditions – crowded, unsafe buildings, that were

poorly ventilated and hot, with toxic fumes and fiber dust in the air, for 14 to 16 hours a day, 7 days a week, for just $75 a month. It was an unspeakable tragedy.

At 9 am, Kajiri stopped what she was doing and climbed onto one of the long tables where finished jeans were piled. She was 30 years old, petite in stature, possibly 5' in height, and 100 lbs. She stood there with her hands on her hips, looking up at the factory office. She raised her right arm overhead, her small hand curled into a fist. She looked around. Nearly all the workers stopped their work and stood up. Only a few remained at their seats, quiet, looking down, continuing their work.

Tanisha turned around, looked at Kajiri, stood up, then looked up toward the office. She could see people inside the glassed, air-conditioned rooms moving about, looking out toward the floor.

"We demand better wages... better conditions!" Kajiri shouted, her arm still raised. We have waited long enough." Her voice was loud, clear, and forceful, stronger than you would expect from such a petite woman. She spoke passionately and with conviction.

The owner, Mr. Bhaduri, walked out of his office, followed by three brutish-looking men - supervisory personnel - and stood at the railing, looking down at Kajiri, his face red with anger, and contorted into a scowl.

"We will not work until we receive better wages – livable wages. And better conditions." Kajiri shouted.

The workers all cheered in support, then started chanting "No raise, no work."

"Get back to work," Mr. Bhaduri shouted back in anger, barely audible over the noise of the workers. He leaned over the rail, his hands grasping the iron bars tightly.

The workers continued to chant, stamping their feet. Kajiri yelled for them to leave the factory – go out onto the street. As they moved en masse out of the back of the factory, shouting and chanting, Mr. Bhaduri, enraged, screamed back at the workers to return or he would call the police. He continued to shout down to the workers as they left the building. Then, he motioned to his supervisors to get down onto the factory floor.

Tanisha caught up to Kajiri, who was still standing on the table. As the last of the protesting workers passed her, Tanisha looked back toward the work tables. Maybe eight or nine workers remained at their seats, heads down, continuing to stitch up

clothing. Some looked at Tanisha and Kajiri, then averted their gaze downward again. Tanisha felt no anger toward them. Only disappointment. She understood the terrible spot they were in. They had children at home, or parents to take care of, and couldn't afford to lose their jobs, or end up in jail... or worse. In past protests, workers had been harassed and beaten, or their parents intimidated. Some had died at the hands of company thugs or even police officers sent in to break up the protests.

Kajiri looked at the last of the workers leaving the factory, then jumped down from the table. "Let's go," she shouted to Tanisha. "They have chosen their own path," she said of the workers who remained at their work stations.

Both Tanisha and Kajiri were keenly aware of the seriousness of their actions, of the dangers they had committed themselves to. But they also knew they could never achieve just wages and safe conditions without a fight. They walked down the aisle and out the back door to the factory, and onto the street.

Outside, the protesting workers picked up signs and placards, and banners they had hidden the night before. They joined other workers from nearby factories and began the march toward a city park. Workers chanted and shouted slogans, and raised and waved their signs: "I made your clothes." "I don't want to die for fashion." "Ensure maternity leave and benefits." "Workers deserve a livable wage."

Kajiri and Tanisha followed the protesters toward the park. With each corner they turned, the crowd grew larger, more vocal, as workers joined the march. The crowd swelled to more than a thousand, nearly all of them women. The yelling and chanting grew louder, and the protesters grew angrier.

After a short march through the city streets, they arrived at the park, followed by news vehicles, camera crews, and journalists. Brightly painted local TV news station vehicles - Samoy TV, NTV, ATN, BanglaVision - rushed in to start filming. Journalists from Al Jazeera, NBC, ABC, and FOX, along with China News Station CGTN, and German News Station Deutsche Welle, set up to record the protest.

A small makeshift stage made of wooden boxes, pallets, and boards was set up in front of the massed protesters. Tanisha and Kajiri made their way through the raucous mass of workers to the makeshift stage. Tanisha helped Kajiri up onto the stage, then

scrambled up after her. She stood next to her friend, grabbed her hand, and they raised their arms overhead, hands clasped, and smiled at the crowd gathered around them. The crowd cheered.

Tanisha gave Kajiri a hug and an encouraging look. “I believe in you,” she yelled to her friend.

Two more women climbed up onto the stage with Kajiri and Tanisha. The four women looked at each other, looked around at the hundreds of strong, courageous workers that came to fight for higher wages, equality, better, safer working conditions – for each other.

Kajiri faced the crowd, raised her hand, and motioned for quiet. The workers, still energized, gradually quieted down, still held on to their signs.

“We have been patient,” Kajiri shouted. “We have worked hard every day, even though we have had to work under terrible conditions. We have gotten sick from breathing the air, we have passed out from the heat, we have worked late into the night to meet a deadline. We are working in unsafe buildings. We have lost friends to collapsing buildings and to fires. We will do it no more.”

The crowd roared, raising their signs high for the cameras. Their faces reflected the energy, the anger, and the resolve they felt.

“We ask for nothing that we do not deserve...” Kajiri continued, “that we do not work hard for. While Doug McMillon gets $27 million a year, and Richard Dickson and Bracken Darrell get $14 million a year, we get $1000 a year.”

(Doug McMillon was President and CEO of Walmart, Richard Dickson, CEO of GAP, and Bracken Darrell, President and CEO of VF Corporation, owner of North Face, Vans, Timberland, and Dickies.)

“Is that fair?” Kajiri shouted.

The crowd roared back, “No.”

Kajiri asked the crowd, “Is it fair that Versace makes a billion dollars a year and we can not feed our children?”

Again, the crowd screamed back, “No!”

Kajiri shouted, “We demand a livable wage. We demand 23,000 taka. We are offered 11,000. Is *that* fair?”

The crowd roared again. “No, no!” They raised their signs and shook them at the cameras.

“We demand the right to unionize. We demand the right to maternity leave. We demand safe working conditions. We demand

the right to go home to our husbands and children each night."

Kajiri raised her arms and motioned for the crowd to quiet down. "It is now sixteen years since the terrible accident at Rana. Eleven hundred of our friends died there when the factory collapsed." She looked out at the crowd, at all the brave people who were risking threats, loss of their jobs, or worse - beatings, arrest, and imprisonment, even death. "And we warned the factory owner of the danger, about the cracks in the walls, of the threat of collapse just the day before, and we were told to get back to work, or we would be fired."

Kajiri paused again. She looked over at Tanisha. Their eyes met. Tanisha clasped her hands together under her chin, tightly interlocking her fingers. She nodded.

Kajiri looked back at the protesters. "The next day, the building collapsed. Thousands of children lost their mothers because of the greed of the few. I lost my sister. You all knew someone who died that day. They died because the rich corporations were more interested in profits, more interested in paying shameful salaries to corporate officers, to fill their pockets even more, to buy more yachts and bigger mansions. Money was more important to them than the lives of those workers.

"We live far away from those CEOs, far away from their thoughts. They care nothing about our hardships, of the conditions we are forced to live under to produce their clothes. Without us, they would have no clothes. We must..."

The wail of sirens drowned out Kajiri's voice. She looked around to her left, to the back of the crowd. Behind the mass of protesters, police cars and transport vehicles had roared up to the edge of the park and had come to a stop. Kajiri looked at Tanisha, then back to the police. They both knew this was the unavoidable consequence of their protest. The striking workers knew what would come next. They had seen it before... been a part of it before. They would pay dearly for this protest.

The doors of the transport vehicles opened, and police in riot gear spilled out. Hundreds of them. They formed rows, standing shoulder to shoulder, helmeted, silent, faceless behind protective gas masks and face shields, batons and automatic weapons in hand, and body shields held tightly against their chests. Less than 100 feet remained between the riot police and the protesters.

The crowd, now quiet, faced the police, their signs and banners

held just as tightly. Tanisha, Kajiri, and her two bodyguards jumped down from the platform and, as they made their way to the front of the protesters, to confront the police, a voice blared over a loudspeaker, saying they were all in non-compliance with the law. It was illegal to engage in mass protest. If they did not go back to work immediately, the voice said, they would be arrested.

The crowd held steadfast, silent, resolved.

Tanisha had fallen behind Kajiri as the crowd tightened and locked arms. She worried that Kajiri would be foolishly putting herself in danger and began fighting her way forward. As she did, the voice in the loudspeaker ordered the riot police to engage the protesters. In lock-step, they started to move forward, beating on their shields with each step. The sound of the boots striking the ground and the batons striking the shields was loud, threatening, and ominous.

The protesters stood their ground and began to chant. “Just wages for just work. Just wages for just work.” Tanisha found it even harder to move through the protesting workers.

The riot police had now reached the workers and began pushing them back. The workers peacefully resisted. The police began striking them with batons. Pandemonium broke out as the protesters tried to protect themselves and fight back, pushing and shoving the officers, screaming and hitting them with their signs, with anything they could pick up off the ground. The news crews remained outside the fighting, recording and reporting the unfolding drama.

The protesters were no match for the stronger, well-equipped riot police, and, although they were determined not to give in, they were brutally overwhelmed. They were beaten and bloodied with batons, their arms and legs were broken, and their skulls split open. They were kicked and stomped on. Tear gas canisters erupted everywhere, throwing up clouds of eye-searing fumes and smoke, making it difficult to see. Sound grenades immobilized many. Screaming and crying could be heard everywhere as the sound of automatic weapons broke out. The police dragged off protesters by their hair, throwing them into vehicles, and beating them viciously if they resisted. Others ran off.

Tanisha fought off the police as best she could, bloodying a few policemen, before she was knocked to the ground. As she got to her knees she was struck again on the back of her head. The blow

stopped all thought, hearing, and vision, and she fell onto her back. She lay there for a moment, staring up blankly at the chaos going on around her, then everything went black.

When she regained consciousness, awareness of her surroundings came slowly, as if from a long, deep sleep. Her eyes opened, and she stared outward, seeing at first only hazy shapes. She had trouble processing what she saw and heard around her. Slowly, it started coming back to her – the fighting, the yelling and screaming, the crying, the sound of gunfire. She now felt pain in the back of her head. She touched the spot and winced, pulling her hand away and looked at it. Blood. She remembered fighting, then everything going black. She rolled over onto her side, then sat up. She looked around. Signs, banners, and placards were strewn everywhere. Canisters of tear gas were still smoking here and there. Some women were getting to their feet, others wandering around in a daze, still others lending a hand to those hurt. It was hard to look at. The police were present, mopping up the few remaining pockets of resistance.

Then it came to her. Kajiri. Tanisha struggled to her feet. She looked around, her eyes still having trouble focusing. She felt unstable on her feet and nearly fell, catching herself. She called out Kajiri's name. No answer. She started to walk around. The pain in the back of her head was getting worse, beginning to throb.

She saw bodies lying on the ground. Five. Were they dead? She recognized the clothing on one of the bodies, a woman, face down in the dirt. As she neared it, she felt a terrible dread wash over her. She walked slowly over to the body, forcing herself every step of the way. Tanisha kneeled down next to the woman's body. Her long, dark hair was matted with blood and covered her face. Tanisha moved the bloody hair out of the way and turned the woman over onto her back. She recognized her friend, Kajiri. She had been shot in the back of the head. A gaping, bloody hole now existed where her right eye once was. Executed. Kajiri had long been an outspoken advocate for workers' rights in Bangladesh, considered a troublemaker by the factory owner, and was a thorn in the side of local authorities for some time.

Tanisha sat down and pulled Kajiri up onto her lap. She looked down on her friend, tears welling up in her eyes. She brushed away the dark, matted hair and stroked her cheek. Then Tanisha broke out in loud, anguished sobs, rocking back and forth. "I will not let

this be the end," she said to her friend. I will not allow you to have died in vain, I will not."Tanisha put her arms around her friend, held her tight, and sobbed uncontrollably.

60

28 March 2029 Wednesday
Ottawa, Ontario, Canada

Canada's Parliament sits on a hill above the Ottawa River, overlooking downtown Ottawa, Ontario. The seat of power consists of four rugged-looking Gothic Revival buildings: the Centre Block and Library, the West Block, and the East Block, all facing inward toward a great central lawn. The structures were built before Confederation, between 1859 and 1865, to serve Upper and Lower Canada. Since Confederation in 1867, they have been continuously occupied by the House of Commons, the Senate, and supporting departmental offices. The original Centre Block was destroyed by a fire in 1916 and was subsequently rebuilt in the same Gothic style.

Access to Parliament is usually by way of Wellington Avenue, which runs east-west directly to the south of the Parliament buildings. However, for the past 2 weeks, Wellington and many of the side streets, as well as the center lawn, were occupied by protesters. Six thousand scientists from around the world, 150 of them members of Scientist Rebellion, had gathered there to protest what they characterized as a global catastrophe, the failure of COP33 to produce an Agreement eliminating fossil fuels, thus setting the world on a path toward societal collapse. It was inexplicable that, in the face of almost certain human extinction, the world's leaders would not do anything to prevent it.

Swelling the number of protesters to fifteen thousand six

hundred were members of Extinction Rebellion, teachers, high school and college students, small business owners, public servants, tradespeople, and ordinary people who wanted to be able to go on with their ordinary lives. Teachers from the Ontario Teachers' Federation, representing 160,000 members in Ontario Province, joined the protest, finding much in common with those protesting children's right to life. They had forced all traffic to come to a stop in the area.

Not everyone agreed with the view that the world was going to hell, however. A small number of counter protesters, about 3600, rejected the need to do away with the economic model that had worked so incredibly well for 200 years. They feared losing their jobs, their homes, their livelihoods. They taunted and cursed the pro-change supporters but kept their distance, feeling safer near the perimeter of the much larger group, shaking their own placards and signs. Confrontations and heated exchanges were still raising tensions.

Two hundred kilometers to the east, another protest was nearing its seventh day. There, 12,000 protesters – railway and port workers - had shut down the Port of Montreal, the largest container port in eastern Canada. At least 2000 vessels use the port every year, 2500 trucks pick up or drop off materials every day, and 60-80 trains load and unload cargo each week. Fifteen cruise lines carrying 67,000 passengers and crew also operate out of the Port of Montreal.

On strike were the Canadian Union of Public Employees and freight workers of Canadian Pacific Kansas City and Canadian National, Canada's largest rail line. Though the workers and management had a longstanding dispute over wages and working conditions and had struck many times over the years, this strike was different. This time, workers, most of whom were fathers and mothers, grandfathers and grandmothers, were frustrated – no, frustrated was not a strong enough word - furious that the Pandemic was dragging on, that their children were dying in their arms, and the government seemed ambivalent, or downright indifferent, to the slow-motion tragedy that was playing out. Corporate management further angered the workers by pressing the government to declare longshore workers 'essential,' thus making their strike illegal and forcing them to accept compulsory arbitration. So far, the government hadn't stepped in, hoping the

two sides would be able to settle the dispute. It mattered little to the workers. They would stay out until the government enacted a plan to reverse course.

Emma Harris emerged from the crowd protesting outside Parliament, along with two men and another woman. All four walked to the entrance of West Block, then the two women ascended the steps to the top, while the men stood guard at the bottom, one on each side of the dual staircase.

Emma had finally broken with mainstream scientists, disappointed that they had lost their position as respected counsels, that they had been relegated to a position of irrelevance, and that the COP Process itself had become no more than a meeting place for fossil fuel interests. She was convinced that change could only be achieved now through force.

Emma leaned on the stone railing, looked down over it to the bottom, then looked out over the huge gathering in front of her. She had spoken to large audiences before; that was not new, but this time she was addressing a large crowd of angry protesters, people she intended to make angrier. It was a little scary, but it was also exhilarating. There were thousands of people out there, she guessed. She was not the first to speak to these people. There had been many speakers over the past two weeks, voicing their anger and disappointment at the government, calling for the lawmakers to "legislate, not procrastinate" a solution to the twin crises - the Pandemic and the Climate.

This protest was only one of a great many that the two Extinction organizations were carrying out around the world. Mass protests were happening in Africa, North and South America, Europe, Asia, Australia – 85 countries in all. Some of the biggest ports in the world - Vancouver, Rotterdam, Los Angeles, New York, Houston, Singapore, Marseilles - were shut down. Commerce had ground to a halt. The organizers hoped for a turnout of 5 million – teachers, students, scientists, economists, parents - to push for a radical departure from the current destructive socio-economic system, to a new one that would save the world's children, to one that embraced equality and the value of all life.

Emma picked up the microphone from the step and blew into it to see if the power was on.

"I was told, when I arrived at COP33 last February," she began, "that I would be part of a historical event, possibly the most

important in human history, one that would set a different course for humanity, based on a new Paradigm. One that would save our children by saving nature, one that would lead us toward a sustainable future.

"When I left two weeks later, I realized they were right, I *had* been part of a historical event, but not one that would lead to a better world, one that would spell an end to our civilization. In our darkest hour, our leaders have walked away from their responsibilities, they have given in to the elites who line their pockets and buy their votes, abandoning those who are suffering the most – our children, who are dying by the millions every day, who will never have a chance to grow up, to have rewarding lives, to fall in love, to have children of their own. And their parents will watch helplessly as they die.

"Also abandoned are the poor of the world, those left behind by the rich, those who contributed nothing to our predicament, yet will have to pay the highest price for it. COP33 was an utter failure, as were all the COPs before it. We failed our children. We failed our grandchildren, and all those who will come after us."

The crowd roared angrily, screaming for justice, while news crews from around the world filmed. Behind the crowds, a perimeter had been set up by the local police to observe the protest and maintain order. The police also maintained a presence on the streets leading up to Wellington and the government buildings. They stood guard at all the entrances to the buildings, denying entry should it become necessary.

Emma held up a piece of paper at arm's length over her head. She gripped it tightly, crumpling it as she shook it to make a point. "This is a list of demands that must be met by all governments if we are to have any chance at saving unborn children from this Pandemic, and preventing the collapse of society.

"First, all governments must agree to decarbonize and begin transitioning away from fossil fuels immediately. We must address inequality - gender and class inequality – in wealth and income, which is at the root of all government mistrust and unhappiness. The global North must forgive the nations of the global South all their climate-related outstanding debt... and live up to its obligation to pay for the loss and damages suffered by the South."

Emma was getting angrier by the second, her voice becoming stronger and louder as she spoke. She was angered by the despair,

frustration, and anguish the earth's less privileged were feeling. The crowd was feeling it too, screaming at each bullet point Emma made.

"And last, governments must agree to accept the right of all Indigenous Peoples to participate in all negotiations and have voting rights. They are Earth's first stewards and have lived in balance for thousands of years. They must be allowed to guide us back to that balance."

The crowd roared in assent, drowning out the sound of the counter protesters.

Emma waved the paper with the demands again. "We will not leave until the government of Canada agrees to sit down and negotiate an end to fossil fuel use." She then backed up against one of the stone columns outside the entrance door and sat down against it. The woman who had been standing next to her backed up to another column and sat down against it.

The men who were standing at the bottom of the steps rushed up the stairs toward Emma as the crowd broke out into an ear-piercing uproar. The men took out long lengths of chain and locks and bound Emma and the other woman to the posts, then connected the two women together in a confusing tangle. After they finished, the men backed off and stood at the top of the steps, blocking access to the entrance. The crowd, still excited and cheering Emma, moved closer, filling in all around the steps and back to the walls of West Block. They sat down, body to body, creating a nearly impenetrable mass of humanity that encompassed the entire center lawn and out to Wellington Street.

The speed with which the crowd closed ranks and blocked off access to the West Block entrance caught news crews, journalists, and even police by surprise. All had been cunningly moved to the perimeter. The police found themselves at a strategic disadvantage in controlling the protest. All entrances were blocked, preventing entry or exit from the building by anyone, including members of the House of Commons, which was currently in session. Many of the lawmakers could be seen peering out the windows.

Near the back of the crowd, a protester stood up and made his way through those sitting around him, carefully stepping between and over a tangle of arms and legs, to a CBC-TV News journalist. The protester said nothing to her but handed her a piece of paper. The journalist opened the paper and read the contents. She looked

up at the protester, nodded, as if in agreement, then looked at the tightly packed crowd. The protester gestured to those nearest him on the outside, and the first few people shifted over, making an opening. The journalist and her cameraman stepped into the opening and made their way toward West Block, the crowd opening before them and then sealing back up after they passed. The two eventually emerged from the crowd near the base of the staircase and were allowed to climb the steps and pick their way through the last of the protective barrier to Emma.

Emma looked up as the journalist approached and motioned for her to sit next to her. The journalist sat down cross-legged beside Emma while the cameraman squatted down and started filming.

"I'm here with Dr. Emma Harris, Professor of Forest Ecology from the University of British Columbia," the journalist began. "Dr. Harris and her team were instrumental in identifying the anti-viral chemical that is, so far, our only hope to save infants and young children from the RSV virus."

The journalist held the microphone close to her mouth so that she could be heard over the constant tumult of the protest. "Dr. Harris, why have you joined in this protest? What do you hope to gain here today?"

Emma, unusually calm, responded. "This is our last chance, our last opportunity to change direction."

"What do you mean, last chance?"

"I mean, this is our last chance to save humanity from extinction. We are at a crossroads right now, *this year, not next*. There is no more kicking the can down the road, no more time to procrastinate, to argue, to negotiate, do more science. We are at the end of the road now. If humanity chooses the wrong path, there is no going back... no do-over. We will have tipped the Arctic into an inescapable decline. We will lose the Boreal Forest, and with it, the Complex, and any chance of saving children. The anti-viral will never come back. It will be gone forever. Children will continue to die, and the global population will crash, sending civilization into collapse. This is not opinion, not doom-saying, not hysteria. It is fact."

"What do you hope to accomplish here? Do you think your civil disobedience will move the dial?"

"We scientists have failed the public for too long. We have taken too long to make clear the urgency, the catastrophic nature of the

predicament humanity is in. We've been too afraid of being labeled radicals, or extremists, or alarmists. We've been too afraid of losing our credibility, our funding, our jobs. We say that our job is to provide facts only, to advise, to provide information, not to get caught up in politics. The fact is, we have not been alarmist enough! We have not been vocal enough, not loud enough, not clear enough. It is time to be perfectly clear, to be vocal, to be heard." Emma shifted her position to get more comfortable. "And if that means chaining ourselves to Parliament to get their attention, disrupting business as usual, then we will do it. Scientists have an obligation to force change if it is the only means to save society."

The sound of sirens drew their attention out toward Wellington Ave, to the outer perimeter of the mass of protesters. Police personnel carriers and cars were arriving in force, their sirens wailing and lights flashing. Daylight was waning, and the sun was falling behind the buildings, casting long shadows across the sea of protesters. The low light emphasized the brightness of the flashing red and blue lights, which were now everywhere. Street lights and building lights were turning on at the same time. Adding to the chaos of the scene, protesters were turning on flashlights and lasers.

Dozens of prisoner transport vehicles with lights flashing screeched to a stop in front of the Center Lawn. The protesters, watching all the vehicles arriving, screamed and roared their disapproval.

Intensely bright search lights on the personnel carriers turned on, flooding the Center Lawn with blinding light. Out of a megaphone on top of a police car came a voice demanding that the crowd disperse immediately. If they did not heed the demand to pack up and go peacefully, the voice said, they would be arrested. The protesters continued to yell and scream, nearly drowning out the sound of the voice coming from the police car.

Emma stood up against the column she was chained to. The TV journalist stepped back and pointed her microphone toward Emma. Her cameraman continued to record the scene. Emma raised her megaphone to her mouth and called for the crowd to quiet down. Her voice, too, was at first nearly silenced by the roar of the crowd, but as she continued to talk, asking for calm and silence, the noise from the crowd grew more muted. Emma asked the crowd to refrain from violence, that it was a peaceful protest, one to show resolve and determination. She turned toward the police in the back of the

crowd. “We will not walk away from our responsibility. We are not armed and will not fight you, but we are not willing to leave until our demands are met.”

The doors opened on the personnel carriers, and hundreds of police in riot gear began pouring out. As they approached the crowd, the protesters, all still sitting, locked arms with one another and lowered their heads. Tens of thousands of people, from all walks of life, from a myriad of backgrounds, ideologies, experiences, and lifegoals, were joined in a single purpose – to save life from destruction.

News crews from around the world started filming as police officers confronted the protesters, demanding they get up and leave or they would be arrested. The protesters refused and held tightly to one another. The officers began working their way through the crowd, breaking the bonds and carrying protesters off. Some acquiesced and left on their own. Most had to be forcibly removed.

Emma watched with the journalist as the police worked their way into the crowd. “It’s time for all of us to look honestly at our predicament. One point five degrees is dead. There is no path to 1.5 ˚C anymore. To say so is delusional. It only gives license to the rich to continue polluting, to continue destroying ecosystems, and driving humanity to extinction. We are looking at 3 degrees if we continue on this path. Maybe 4. The anti-viral is on the verge of failure, and if we lose it, we will collapse into a shadow of what we once were. Small pockets of humanity, struggling to survive, until we, too, become extinct. We are out of time. Every scientist who understands the threat must become an activist – a force for change.”

Order and restraint began to break down. While some protesters heeded the warnings from the police and decided to leave, the vast majority remained locked in place. It was difficult and time-consuming for the police to separate individuals with any measure of consideration, but any escalation in force was met with cursing and screaming and resistance, and increased attention from the news media. Eventually, the police ran out of patience and began using their batons to pry apart the protesters. The protesters, in turn, resisted, leading to pushing and shoving, kicking and biting, and punching. Some blood started to spill on both sides before the protesters, massively outnumbering the police, forced them back to the outer perimeter. The crowd roared and howled, celebrating the

pushback.

It was nearly 2 am when hundreds more riot police arrived in personnel carriers. Floodlights atop the vehicles turned on, flooding the entire lawn in a harsh, blinding light. Riot police jumped from the vehicles and marched in formation around the outside of the protest area, forming square tactical units at three places around the perimeter, facing the protesters. A megaphone again blared from one of the vehicles, accusing the protesters of illegally obstructing normal legislative processes by blocking entrances to government buildings. This was their last chance to disperse.

Emma, in return, said they would not leave until Parliament agreed to negotiate an end to fossil fuel use. The protesters roared and chanted, shaking their signs, defiantly daring the police to try again.

Moments passed with no movement. The crowd slowly quieted down, waiting for the next offensive. The light, flooding inward from the perimeter, made it difficult to see anything, adding to the tension. The police, all in black uniforms, with shields, batons, and protective gear on, stood motionless. They all, then, donned gas masks. From the back of the police ranks, loud pops could be heard, and dozens of canisters started falling into the midst of the protesters, hitting the grass and pavements, billowing into clouds of smoke. Tear gas! Bedlam broke out as protesters panicked, running in every direction, screaming, coughing, trying to escape the noxious smoke. The police rushed into the crowd, swinging batons and dragging people off. The protesters fought back, but were now clearly at a disadvantage.

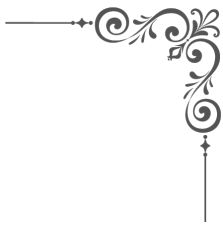
News outlets recorded the unfolding mayhem from every imaginable vantage point. From atop the steps to West Block, Emma watched in horror as fleeting images of smoke, panicked protesters, and police created a surreal, confusing kaleidoscope of chaos. Thousands of protesters ran off, and thousands more were dragged off and arrested. When the police reached Emma, the chains that bound her and her companions were cut with bolt cutters, and she was also arrested.

By daylight, the Center Lawn was littered with the reminders of the previous night. Signs and banners lay strewn across the lawn. Papers, food wrappers and containers, soda and water bottles, half-consumed food, all lay scattered everywhere, mixed with batons, hats, face shields, gas masks, and tear gas canisters, some still

expelling the last of their contents. The smell of tear gas still filled the air. People walked about, picking among the remains for possessions lost the night before, and others just looking for anything of value they could take away. Still others, presumably protesters who had escaped the chaos, stood about, trying to make sense of it all.

Emma and more than 3500 other people, among them teachers, students, and scientists, were arrested for trespassing and occupying government property. Worldwide, 267 scientists would be jailed over the next few weeks for the same transgressions, as protests, strikes, and shutdowns escalated.

To the east, in Montreal, the dock strike would last another thirteen days before the Canadian government declared dockworkers essential workers and put an end to the strike.



61

Most of Bangladesh is floodplain - low lying, with an extensive, irregular, deltaic coastline, the largest in the world, formed by the drainage of three major river systems – the Brahmaputra, Ganges, and Meghna. Two-thirds of the country is less than fifteen feet above sea level, and ten percent is only three feet above sea level.

The coastline is ever-changing due to sedimentation and coastal erosion caused by periodic monsoonal rains that bring floods each summer. Seventy to ninety percent of the annual rainfall for South Asia falls during the monsoon, from June to September. In a typical year, about one-third of the country is inundated.

The people of Bangladesh are no strangers to the monsoon floods. The floods have always been a part of their lives, ever since modern humans migrated out of Africa and settled the Indian subcontinent around 70,000 years ago. Migrating peoples found the area verdant, rich in natural resources, and teeming with wildlife.

The culture of the people of Bangladesh is intimately tied to the nature and regularity of the monsoons. The deposition of silt carried down from the Himalayan Mountains in the north enriches the soil and replenishes lost nutrients and moisture, making the land and coastal waters especially productive. The rains are essential for key crops, such as rice and wheat, and support forage crops for grazing cattle. They fill reservoirs, wells, lakes, and rivers, provide water for cooking and sanitation, hydro-power for electricity, and are responsible for the development and support of a thriving and rich

agricultural and fishing economy.

At the same time, the floods cause great hardships for the seventy million people who live in low-lying, flood-prone areas.

62

17 June 2029 Sunday
Dhaka, Bangladesh

It was 6:30 am, but still it was dark. Thick, menacing clouds raced across the sky, obscuring the light from the rising sun. Tanisha Sarkar couldn't sleep. She got up out of bed and walked to the window. She hadn't been able to sleep well since the protest. Horrific images of that fateful day, and the death of her friend, invaded her thoughts day and night since then, even as she was still coping with the loss of her son, Dalim, two years before, from RSV.

Tanisha had been one of the lucky ones. She had survived the protest with a minor concussion. Many had lost their lives or suffered broken arms or legs. Two thousand workers had been arrested. Tanisha was one of them. She might still have been languishing in jail, had the factory owner not come to rely on her and her organizational skills to get him out of tight spots with his suppliers. It galled him to have her released almost as much as he hated to admit he needed her.

She felt helpless, powerless, and impotent. What would it take, she thought, as she stared out the window, for factory employers to recognize the importance of the workers who actually make the clothing they sell. Without the workers, there would be no clothing, nothing to sell, no business. Everything would stop.

But she also knew it wasn't all her employer's fault, either. It went much higher. The rich, who owned the giant corporations that

contracted with her employer, were squeezing him with razor-thin margins, so he had to squeeze every bit of work he could out of his workers, without paying them any more than he had to. Greedy elites thought no more of the nameless workers who produced their goods than they did of the machines the workers toiled over. The workers were mere extensions of the machines they operated, just another expense, and nothing more.

Illuminated by the light across the street, Tanisha could see it. Rain... finally. The beginning of the monsoon season. It was a light rain, but rain nonetheless. It hadn't rained in months, not much anyway, since last fall. The monsoon was a welcome change from the oppressive heat and dry conditions that had prevailed since last October. Although she knew it would be much more humid, with the possibility of dangerous flooding, Tanisha was looking forward to the increased cloud cover that could drop temperatures by twenty degrees or more. It would make work on the factory floor a little more bearable.

The rain was falling more heavily now, and the wind was picking up. Tanisha was thankful she didn't have to go to work today. It was her one day off. She picked up her cell phone off the kitchen table and called her mother. Her parents lived only a few miles away, but Tanisha preferred to live by herself. It gave her more freedom. And, ever since her forced betrothal, her relationship with her parents had been strained.

Her mother was also always worrying about her, more so since Dalim had passed away, and especially now that she was becoming more active in the protest movements. After Tanisha's friend was murdered, her mother begged her to stop, telling her that it would serve no useful purpose for her to continue. It was just too dangerous.

Tanisha thought it wiser not to tell her mother that, after the death of her friend, she had taken over a leadership role in organizing the workers, making the movement more focused. She was more committed than ever to making a difference – to making working conditions better.

Neither did she think it was a good idea to tell her mother that she had been contacted by representatives of a global Coalition of Indigenous and Island Peoples who wanted to help her transform her local movement into something regional, something more focused and organized, that had the potential to transform society

itself. She had been intrigued by the idea and wondered if a coordinated global effort might just succeed in changing the way the world works.

After Tanisha's mother answered the phone, Tanisha asked how she was doing.

"I am doing well," her mother said. "Are you not working today?"

"No," Tanisha replied. "Not today, mother. I am off today. Did father get called in?"

"Yes. They expect heavy rain today. The monsoons have started. It has been raining since last night in the north, and the rivers are filling already. They are saying that this year will be the heaviest rainfall in years. I am worried. Your father was called in early this morning to begin clearing the drains all over the city."

"He will be fine, mother. You know Father is careful. He doesn't take any chances."

"I know, I know." Tanisha knew her mother would not stop worrying until her father returned.

"Would you like me to come and stay with you?"

"No," Tanisha's mother answered.. "Stay inside. I will be fine. The rain has just started, and it is only going to get worse. Do not go out in this weather, Tanisha, promise me."

"I won't, mother. I'll call you later this afternoon. I love you."

"I love you, too, Tanisha. I will talk to you tonight."

Tanisha hung up and placed the phone back down on the kitchen table. She went to the window and looked out. It was becoming lighter outside, but she doubted it would get more so. The rain was beginning to fall in heavy sheets now, blown around by gusty winds, obscuring her view down the street. The rain poured off the roofs onto the street below. Signs and banners shook, lifted, and fell as the wind pushed against them.

Tanisha was relieved she was on the second floor, but still uneasy as she watched the ferocity of the wind. Many people were still trying to make their way down the street on motorbikes and bicycles, buying last-minute food items at those shops still trying to conduct business. The rain and chaotic wind were nothing unusual – just another monsoon season that had to be negotiated.

A covered rickshaw, caught by a sudden gust of wind, nearly tipped over when the passenger got out and stepped onto the street. The driver quickly leaped off his bicycle and righted the carriage

just in time, before it went all the way over on its side. He was nearly hit by a three-wheeled motor vehicle passing by.

By late afternoon, the winds and rain were more fierce, and visibility was limited to a few feet. Looking out her window, all Tanisha could see was a uniform gray color as the downpour continued unabated. Thunder rattled her windows, and brilliant flashes of lightning assaulted her eyes. The sound of the rain beating down on the roof made it difficult to hear anything else. The lights went out. “A power outage”, she thought. That was not unusual. What was unusual was that it took so long for it to happen. Tanisha already had candles out, and she lit a few.

Power outages were becoming more common as the climate warmed. Erratic and extreme monsoons meant stronger winds, increased floods, and greater damage to electrical infrastructure. Power can remain out for hours or days.

By evening, the street was beginning to flood, and several inches of water had accumulated, over-topping the curb and beginning to make its way into doorways. The flooding was not unusual, either. It flooded regularly in Dhaka. Much of the city is below sea level and no more than eight feet above anywhere. In the 2004 floods, 40% of Dhaka was submerged. It is also one of the fastest-growing cities in the world, unable to keep up with the 300,000 to 400,000 refugees that relocate there each year, mostly due to flooding and riverbank erosion elsewhere in the country. Most wind up in the poorest and most flood-prone areas of the city.

Tanisha felt them first, before she could see anything - palpable, low-frequency concussions. They grew stronger, then became audible. It sounded like things tumbling, banging into each other. She ran to the window and looked out. Daylight was waning, but the rain had eased off a bit, and she could look up and down the street. What she saw terrified her. A river of water and mud three feet high was rushing down the street, roiling, tumbling, splashing, exploding into doorways and through windows, around and through anything in its path, carrying off anything not anchored down. The few people still on the street were frantically scrambling to safety wherever they could find it. Carts, bikes, and wagons were being picked up and carried off. Mixed in with the thick brown soup were rickshaws, signs, boxes and banners, carts, motorcycles, and bicycles.

As she stood at the window, looking out, transfixed by the

incomprehensible images of destruction unfolding outside, Tanisha heard screaming coming from down on the street. She looked left and right, up and down, searching for the origin of the sounds. Then she noticed something just beneath her. She looked closer. Her downstairs neighbor, an elderly grandmother, and her eight-year-old grandson were caught up in the maelstrom. The boy was clinging tightly to his grandmother, high up on her chest, screaming in terror, while she, with one arm around him, struggled to hold onto a post just outside a shop.

Tanisha dashed out the door of her apartment and into the hallway. She raced to the stairwell that led down to the first floor and bounded down the steps two and three at a time, to the landing of the apartment building. She briefly looked out the window facing the street, then leaped off the landing and into four inches of water. The whole first floor had already flooded. She rushed to the front door and seized the door handle. Then, realizing there was probably three feet of water on the other side, let go. She quickly ran back and leaped up onto the landing, pulled the latch on the window, opened it, and struggled out, falling into the frenzied tumult of water rushing by. She fought her way to her feet, soaked and muddied, wiped the mud from her eyes, and pushed her hair to the side, then struggled around to the front corner of the apartment house. The power and weight of the water pushing against her body felt enormous, sweeping her off her feet more than once as she grabbed onto whatever she could to keep herself from being swept away.

Finally, Tanisha made her way around the corner to the side of the apartment building. There, barely fifteen feet away, in front of a small shop, she saw the grandmother and child, in the fast-moving water, struggling to hold onto a post. They saw Tanisha, and the old woman screamed to her for help. The boy, terrified and crying, was holding desperately onto his grandmother. Tanisha called to the old woman, told her to hang on, that she would get to her. The water was raging still, clutching at everything in its path, looking for the slightest grip to capitalize on, and tear it loose.

Tanisha looked frantically for a way to get to the old woman. Seeing nothing to hold onto, she pushed herself off from the wall, out into the narrow space between the apartment building and the small shop, and fought her way across toward the old woman. She stumbled over some unseen object and lost her footing, and the

flood water carried her past the old woman and boy, and up against the front door of the shop. Tanisha seized onto the door frame and wedged herself between it and a post to the side of the door.

The old woman was tiring from the struggle, losing her grip on the post. Tanisha knew she couldn't fight her way back to the old woman in time, and screamed for her to let the boy go - that she would catch him.

The old woman hesitated for a moment, afraid to let the boy go, and yelled out, "No, no." Tanisha screamed to the old woman again, "Let him go," and outstretched her arms. Finally, the old woman, unable to hold the boy any longer, let him go. The water carried the boy back toward Tanisha, and she reached out and grabbed him by his shirt sleeve and pulled him into her body tightly. Just as quickly, the old woman, exhausted, let go of the post. The rushing water carried her past Tanisha, as she and the boy reached out for her. Their eyes met for an instant as the old woman passed, and then she was out of sight, under the water. The boy screamed out for his grandmother, reaching out with one arm while he held tight to Tanisha with the other, crying for her to come back.

Before the image of the old woman had even faded, the front door to the shop cracked and split apart from the pressure of the water, and Tanisha was sucked into the shop with the boy. She held him tight, her arms wrapped securely around his body. She tucked her head into her chest and grimaced as she and the boy spilled onto the floor and then tumbled every which way with the torrent of mud and water filling up the shop. They bounced off walls, against furniture and cabinets, and mixed with countless items big and small that were ripped from the walls and shelves. With each contact, Tanisha could feel cuts and bruises erupt on her body.

After what seemed like a lifetime, the two came to rest in one corner of the shop, in a tangle of jammed-up furniture. The water, more than four feet deep, but less turbulent now, still continued to flow in with force through the door opening, circling the room, and exiting through a broken window, back out onto the street. An old wooden table top had protected them from being crushed between a wardrobe, a corner cabinet, and the table. The boy had held onto Tanisha with a death grip around her neck during the whole terrifying experience. Tanisha quieted the boy and lifted him onto the tabletop. She held on, braced against the furniture, keeping the boy and the tabletop stabilized as the water and mud mixture

continued to swirl around them.

The daylight faded into darkness, and the rain continued, but much lighter now. Tanisha could see nothing. The power was out. She felt around for the boy - touched him. He was still there, finally asleep. She heard nothing from outside the shop. Just the rain. No one outside as far as she could tell. Too dark, too dangerous. Everyone who could get inside was inside - safe. Or, they were... she didn't want to think about it. Tanisha thought about the boy's grandmother, the image of terror in her eyes as she slipped beneath the water. She wondered what became of her. Was she still alive?

Tanisha was exhausted - and cold. The stress of the last few hours had worn her out. The water had settled down now, was much calmer. Had subsided some. The water level was down to her waist now. That was a good sign. They would have to stay there until it was light. Then they could look for the boy's grandmother. Tanisha climbed up on one of the wood boxes, up out of the water, propped her leg across onto the table top to hold the boy close, and leaned back against another box. She folded her arms and closed her eyes.

Sleep came in fits and starts. Tanisha was too scared - too uncomfortable, and too wet to really sleep. She was keenly aware of all the sounds around her - debris moving about the room, clunking into each other, the rain beating against the metal roof of the shop, water running off the roof and down through cracks, dripping onto the furniture and boxes, plaintive cries for help outside in the dark. Now and then, somewhere off in the dark, she heard the rush of wind between the buildings. She opened her eyes every few minutes and, though she could see little in the dim light, she could make out the boy's shape, and felt for him, checked to make sure he was still there, still sleeping. Satisfied he was okay, she closed her eyes again.

Morning light was filling the room. Tanisha opened her eyes. She lay still, lying on her side, slumped up against a box. Her eyes searched about, her brain tried to make sense of her surroundings. She sat up with a start, realizing she had been asleep. Frantically, she looked toward the boy. He was still there. Still on the table top. Still asleep. Tanisha relaxed and let out a sigh of relief.

She heard sounds outside. Voices. Men were talking, searching through the rubble. She called out for help. One of the men heard her and yelled back, asking if she was alright. She said she was, was

inside, near the back of the shop, with a little boy. The men started pulling the debris away from the door, and once inside, they cleared a path back to Tanisha, throwing aside broken furniture, pieces of metal, bits of shelving, and wooden boxes. The boy was now awake and trying to right himself on the table top. It tipped side to side in the water, now about thirty inches deep, bumping against file cabinets and furniture that had kept it stable during the night. The men helped Tanisha down off the boxes, freed the table top from its moorings, and floated the boy out the window in the front of the shop. Tanisha was already there and helped pull the table top through. The men waded back out through the front door and joined others outside to continue rescue efforts.

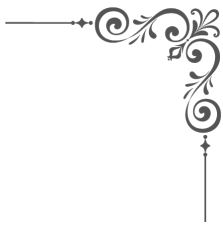
Once Tanisha got control of the table top and made her way out into the middle of the street, she was shocked by the scene of destruction. It was hard to get her bearings. Nothing looked familiar. The street was still underwater, and debris was floating everywhere. All the little shops and cafes, all the businesses and offices on the street level were flooded, ruined. Broken and misshapen Rickshaws were piled up everywhere - in doorways, alleyways, inside shops, on top of cars, inside cars. Motorcycles and bicycles lay twisted and mangled, unrecognizable. Furniture and office equipment, signs, tables, chairs, and desks lay tossed about like toys, piled up against buildings and floating in the floodwater. Broken glass from windows and doors, now splintered and shattered, covered everything and lay hidden beneath the muddy water, beckoning the unwary to step on it.

People were out surveying the damage, helping those trapped in the rubble, and caring for the injured. Men pushed small boats and rafts through the water, ferrying the old and infirm, women and children, to drier ground. The sound of wailing periodically punctuated the air. Tanisha knew a body had been found. She could feel their pain. She knew well the feeling of losing a loved one. She thought about her mother and father. Were they safe, did they make it through okay? She didn't have her phone. It was still in the apartment. She worried that, if her mother had called and she hadn't answered...

She needed to get back to the apartment, get her phone... but she had to find the boy's grandmother first. The image of the old woman being carried away by the floodwater, the terrified look on her face as she disappeared under the heavy, muddy torrent, was

seared into her memory and would be impossible to forget. Tanisha knew it was unlikely the old woman was still alive, but, for the sake of the boy, she couldn't give up. She would keep looking for her.

Tanisha joined tens of thousands of other people caught in Dhaka's floods that day - the poor, the forgotten, dazed, hungry, and scared - many carrying the last bit of personal belongings they owned in the world, wading through waist-deep muddy water, trying to survive as best they could. They had had no hand in creating this steadily deteriorating and unpredictable climate, nor deserved little blame for the desperate economic and financial predicament they found themselves in, but they were condemned to endure it anyway, by nations that *were to blame* and refused to help. Their story is one of centuries-long occupation and colonial exploitation.



63

The original inhabitants of the Indian subcontinent were hunter-gatherers. They began to settle into farming and fishing communities after the end of the last ice age. Throughout much of their early history, the Bengalis, as they came to be known, were conquered and ruled by a succession of outsiders, mostly from the steppes of northern Asia. For the most part, their overseers, once in control, were content to rule with a light hand. The Bengalis were accepted into the society of their rulers, the artisans were patronized and supported, and life continued with little change. Little change until the mid-eighteenth century, the beginning of the Industrial Revolution, and the colonial rule of Great Britain.

The Indian Subcontinent's descent into impoverishment, exploitation, inequality, and divisiveness began with trade. The British East India Company, in 1600, received a Charter to trade in the Indian Ocean Region, eventually setting up trading outposts in India. In time, its early focus on trade transformed into tax collection and, with a private army totaling, at times, 260,000 troops, it gained considerable influence over most of the subcontinent.

The East India Company, in 1757, in a dispute over unpaid taxes, defeated the Bengal army in the Battle of Plassey, enabling the Trading Company to take full control of India and to begin the systematic rape and plunder of the people. After control of Bengal was transferred from the British East India Company to the British Parliament in 1787, the exploitation of the people continued.

Between 1765 and 1938, an estimated $47 trillion in taxes, trade surpluses, and natural resources was systematically transferred to Britain, fueling its rise as a global power during the Industrial Revolution and after.

Britain had no interest in modernizing the subcontinent, improving its education system, infrastructure, health, or the lives of the people it ruled. It exploited cultural, religious, and class differences, created an elite that supported its policies, and created a fractured, divisive, and segregated society. Hindus and Muslims, who, for centuries, were united culturally, were no longer able to live peacefully as one people. Violence and bloodshed escalated, and neighbors turned on each other. At the same time, pressure had been building within the country demanding independence, and Britain, beginning to lose control, in part because all its resources were being expended on a Second World War in Europe, seemed receptive. Opposing factions within India acknowledged that the country would have to be divided, but could not agree on a method.

After the Second World War, Britain no longer had the resources to hold onto India and agreed to grant the country independence. Unable to get the various factions to agree on a plan of separation, Britain drew up its own plan and hastily left.

Britain partitioned the country into Muslim East and West Pakistan and Hindu-Sikh India. What ensued has been viewed as one of the most violent, bloody episodes in Asian history. Violence and chaos broke out as Hindus and Muslims, who had been co-existing in mixed communities until then, clashed in mutual genocide as they tried to separate and make their way to their respective new borders. A bloodbath ensued, with both sides perpetrating atrocities. People were hacked to death, tens of thousands of women were raped and disfigured, and babies were cut from their dead mothers' wombs. The carnage was unimaginable.

Britain's legacy of exploitation, divisiveness, and impoverishment on the Indian subcontinent continues today, aided by the wealthy nations of the Northern Hemisphere. Britain's actions over a period of 300 years left a people fractured and unable to come together to govern themselves, and unable to protect themselves from a changing climate that threatened their existence. It left them vulnerable to rising seas, ever more destructive storms, dangerous heat and droughts, and deadly

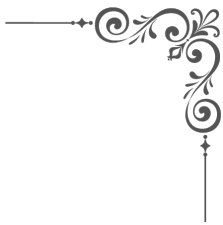
pandemics. It left them without the fiscal ability or technology to protect themselves. Pleas by countries like Bangladesh for money to mitigate destruction caused by rising seas and storms were met with hollow promises by colonial empires to fund loss and damage funds.

As sea level rises, more land is lost, forcing more people into urban areas, like Dhaka. People who lose their farms and homes are unable to return because the land is no longer there, or, without jobs, they are unable to pay back loans. Demand for places to live has driven up real estate prices in Dhaka, sharpening class differences, resulting in ever greater wealth and income concentration. Slums and poor-quality housing, constructed in the most vulnerable areas of the city, have grown exponentially. These are the areas that suffer most from the monsoon floods.

And conditions have only gotten worse as the Earth has warmed. Monsoons are becoming more irregular, more unpredictable, more destructive, with heavier downpours and periods of hot, dry weather in between. Four million squatters live in squalid conditions, with poor sanitation, no clean drinking water, and unreliable electrical power. Untreated sewage seeps into waterways, leading to cholera, typhoid, dysentery, and diarrhea. By 2050, rising seas will force the relocation of more than 20 million refugees in Bangladesh alone, due to rising sea levels.

Twenty-three countries, including Britain, the United States, Germany, and France, out of more than two hundred countries worldwide, are responsible for half of all the emissions spewed into the atmosphere to date, and for the current global climate crisis that threatens to destabilize civilization and cause the deaths of hundreds of millions of people.

The climate emergency is a legacy of colonialism, which continues today in the form of emissions that are exported from rich nations to the Global South. Because of cheap labor in countries of the Global South, manufacturing is transferred there, driving up air pollution. Waste from rich counties are dumped on the soils and waterways of the poor. Incinerators are located close to poor, ethnic minorities, and blacks. The continued destruction of land and water, and air pollution, in poor countries is just a modern form of colonialism.



64

24 June 2029 Sunday
Canberra, Australia

Dr. Gary Sanders sat on the edge of the bed, in his briefs, flipping through the channels on TV. He had no place to be because he had no job. He had been fired the previous week as Chief Medical Officer at the Australian Department of Health and Aged Care. He and 13 other scientists, and 250 civilians had shut down and occupied government offices in Canberra for six hours. They were all arrested for trespassing on government property, a charge that carried a penalty of one month in jail. Luckily, he spent three days in jail and was released without any charges. But he did lose his job.

Gary stopped flipping through the channels at NBC News and turned up the sound. He watched the images on the screen as the news commentator described scenes of protests at corporate oil company offices, picketing outside government buildings, shutdowns at air, train, and bus terminals, trucking warehouses, marine terminals, and oil pipelines. Protests were building worldwide.

Sara, who still had a job, was getting ready for work. She had a plane to catch in six hours. Her bags were already packed and standing by the front door.

“Are you going to get dressed? You have to drive me to the airport... or do you want me to take a taxi?” She waited for Gary to

answer, heard no reply, then asked again. “Gary?”

Gary was intently watching the screen. “It’s beginning, Sara. It’s beginning.”

The news commentator was reporting on how the protests were expanding worldwide. Tens of millions of people were striking, protesting, and interfering with the movement of goods. Air and marine transport of goods was being interrupted, affecting trade worldwide. Supply chains were showing signs of strain. Demonstrators had occupied government buildings in Canada, France, Germany, Poland, Egypt, and Israel. Reports of deaths from crackdowns in Hungary, China, Peru, and Turkey had been reported on social media, but had not been confirmed.

Sara, walking by, looking for her iPad, stopped to watch. “It’s getting scary, Gary. People are really pissed this time. COP33 was the last straw. Emma Harris was right. The COPs have been a failure.” She sat down on the end of the bed, looking up at the screen. What the hell is it going to take?

“This, Sara. The people. We have no leaders, not any more.” Gary said, still watching the drama playing out on the TV screen. “They’re no more than tools for the rich. It’s going to take people, Sara. Millions, billions of people, doing this. Shutting everything down. Making them listen. I only hope we can keep it up.”

Sara watched the images of riot police attacking protesters in Hungary. “That’s what I worry about.” Sara pointed to the screen. “I don’t want you to get yourself killed. I can sympathize with them, really, I can, but they’re playing with fire. It can turn ugly real fast, especially in countries like Turkey, the U.S., and China... and North Korea. Are you really going back to that? I worry about you. That could be you, Gary.” Sara pointed to the screen, to images of police using water hoses, sound grenades, batons, rubber bullets, and live fire. “I know things are bad - and getting worse, but I keep thinking there’s got to be a better way.”

Gary got up, walked closer to the TV, still staring at the screen. “Tell me, Sara, do you really think there is a better way? Because I don’t see one, not any more.” He was frustrated and angry. They stared at each other for a moment, silent. “Can you think of a better way?”

“No, I can’t. I don’t know, Gary...” Sara replied, her voice trailing off. She knew in her heart that mass demonstrations were the only option left. But she was afraid. She was terrified of the

future.

"What about legal challenges? Fight it in the courts." She was grabbing at straws, and she knew it. She knew time had run out for that, too.

"They have been... for years, decades - fighting it in the courts. Where's it gotten them? The Sierra Club, Earthjustice, Greenpeace, Indigenous groups, the Environmental Defence Fund have been suing forever. The Small Island Nations have been fighting at every COP for justice. It's not working. They keep fighting in court, winning small battles here and there, but not really making a difference, not winning the war. This is the only way left... for people to make it happen. We have to build a movement that's too big to stop."

Images of protesting teachers and students outside government offices across the globe, in Paris, Stockholm, London, Washington, Brisbane, and other cities, flashed across the screen. The reporter on the scene in London described the protest there as massive, more than 300,000 people. Signs read "Save our children", "Save the world", "We are out of Time", and "Save our Planet, Save our Future." Similar demonstrations in hundreds of other cities worldwide were taking place. Academics from universities and colleges, high schools, and vocational schools, the reporter said, were beginning to join protests worldwide. Young children, ten to twelve years of age, were joining the lines with their parents and teachers, carrying signs, proudly lifting the signs high above their heads, smiling, showing off for the news.

Sara wondered if the parents of those demonstrating children, the ones so proudly holding up their signs, had any idea of the danger they were putting their children in by threatening the government.

There were also reports of scattered walkouts by air traffic controllers in Canada and Mexico, disrupting domestic and international flights. Canadian officials threatened firings or other legal action if controllers did not return to work. Their actions, the government said, put at risk countless lives.

"You see, Sara? The insanity of it. How can they say that shit? As if we all returned to work, life would just go on as usual. There is 'no life as usual' anymore. That's gone. Populations are going to crash. The end is really coming, you know that."

"I know it; I can't argue with you, Gary," Sara replied. "It's just

hard to get my head around it. To actually feel it. We're contemplating - really contemplating - the end of the human race. I see people leaving their jobs, people I work with, moving to the mountains, to the outback, living off the grid, sailing off to God knows where. People I've worked with have quit or left the country. People I thought were really optimistic about the future; they've lost hope, just packed up and left."

"They're just kidding themselves, too." Gary grabbed his pants off the chair and put them on, then went to the closet and pulled a shirt from the rack and slipped it over his head. "There's no place to go. We're fucked, Sara."

Sara looked up at the TV. On the screen was an image of the CFO of BP Oil Company. Sara motioned toward the TV. The caption underneath read "BP CFO Shot in London." The reporter described the murder of an oil company executive in broad daylight on a busy street in London. The CFO was attending a shareholder's meeting. He was unaccompanied, had just exited a taxi, and was walking the fifty feet to the entrance of a Hilton International Hotel. A surveillance camera caught the image of a hooded individual walking up behind the executive and, from fifteen feet away, firing a pistol. The video on TV showed only the attacker firing, leaving to the imagination the rest of the tragic encounter.

"That's what I'm talking about, Gary. Do you see that?" Sara pointed to the TV. "That's not the way to do it. That will only lead to anarchy. I don't want you caught up in shit like that - assassinations. Governments are getting militant about it, too. They won't do the right thing, but they have no problem declaring martial law and shooting protesters. Look what's going on in the US. I don't want you getting beaten to death, or thrown in prison, or disappearing. You were lucky this time. You might not be so lucky the next time. The oil companies aren't backing down either..."

"Not yet," Gary replied. "But they will. You know where my keys are?"

Sara looked at him, silent for a second, thinking. "Over by the toaster."

Gary walked over to the kitchen counter, looked around, didn't see them at first, then noted them between the Keurig and the toaster. He snatched them up and put them in his pocket.

"They just threaten to fire everyone. Sara continued. "That's

their solution to the problem. Look what happened to you. Townsend just fired you."

"They have too much at stake. Look, Sara, I don't want to get shot or disappear either, but if we don't stand up and fight for our lives, we'll lose our lives. Russel believes..."

"Russel?" Sara cut Gary off. "You've been talking to Russel?"

"Yes... I have. He wants me to help organize demonstrations in Australia, coordinate them with demonstrations worldwide." Gary picked his hat up off the counter and put it on.

Sara was surprised. She had no idea Gary was this deeply involved in the Movement, but it didn't surprise her. He'd been getting more and more vocal in his criticisms since the COP ended. A part of her even envied him. As dangerous as it was, he was actively doing something about it. She was frustrated and angry, too, felt a little guilty that she wasn't out there with Gary, but she knew her job was just as important. Reporting the facts, making sure people knew the truth, fact-checking the politicians. Not letting them get away with lies. Truth mattered.

"He says the key to changing the system is coordinated mass demonstrations that bring the world to a grinding halt, until governments agree to change the system. I agree with him."

"And he's okay with the violence? The murders, the sabotage of pipelines, the looting, the Molotov cocktails?" Sara looked at her watch. "We've got to get moving. I'm going to be late." She slipped her notebooks, computer, and tablet into a pocket of her luggage and zipped it up.

"No... no, he isn't." Gary turned off the TV, watched the screen as it went dark. "That's the point, Sara, he doesn't believe violence is going to get us anywhere. You know him. He's a peaceful man. He still is a believer in non-violence. Civil disobedience is as far as he thinks we need to go. In fact, violence is counterproductive. Looting, an' blowing up pipelines, an' murdering oil execs just creates more push-back from the government, just like you said, escalating everything. Most of all, it distracts from the message. All people see is violence. They get turned off, they turn against you. They forget the message."

Gary put his shoes on, grabbed Sara's luggage, opened the door, and rolled the luggage out. Sara followed. She looked around the room, making sure she hadn't forgotten anything. She shut the front door behind her and locked it.

“I agree one hundred percent with Russel. Violence isn’t right, and it’s not necessary. Shutdowns, strikes on a massive scale are. The thing is,” Gary continued, as they walked out to his truck, “people are already protesting around the world, but the size of the protests have to be scaled up enormously. They have to be organized, managed, and focused on one thing: change the system. Focused mass demonstrations work - if they’re big enough and relentless enough. Look how protests brought governments down in the Arab Spring. People had enough; they didn’t give up. It fed on itself. If we can get the message out, get the police and military to start questioning the motives of the politicians, we can get them to switch sides.”

Gary opened the suicide door on the passenger side of the truck, lifted the luggage up onto the seat, and closed the door while Sara opened the front passenger side door and climbed up into the truck. Gary closed her door, then went around to the driver's side and got in. He sat there for a second, then started up the truck. He put his hand on the shift, was about to move it into drive, when Sara put her hand on his. He turned his head toward her as she gently squeezed his hand.

“Until that happens, Gary, people are still going to get beat up and killed. Maybe you. I’m worried. I don’t want to lose you.”

“I don’t want to lose you either, Sara.” Gary squeezed her hand back. He turned toward her and their eyes locked. “I love you, Sara Campbell.”

Sara was surprised. She hadn’t expected that. It was the first time Gary had mentioned love. He loved her. She felt a rush of emotion filling her. She had known for a while that she loved him, but hadn’t said anything either. She wanted to, but didn’t want him to think she was rushing things. Take it slow, she thought. It’ll happen.

She leaned in toward Gary, and they kissed. A soft, gentle kiss that lingered, then slowly parted. She looked into his eyes, around his face, down to his chin. He looked back into her eyes. Sara leaned in again, and they kissed again.

“I love you, too. I believe what you are doing is right and necessary, Gary, but promise me you will be careful?” Sara asked, her voice low, soft, pleading.

“I will,” Gary said. He put the truck into drive, and it began to move.

65

Viruses are the simplest of organisms, unable to sustain life on their own, so they need to hijack the metabolic system of their host to reproduce. They are extremely small, so small, in fact, that you could fit 100,000,000 of them in a pencil dot.

There is disagreement in scientific circles as to whether or not they are living organisms, and although most biologists and virologists think they are not, there is a growing cadre of biologists who are rethinking the status of viruses and their place in the living world. The difficulty comes from our inability to define life satisfactorily. We know intuitively when something is alive, we can describe what living organisms do, but we're still not sure what life is. Organisms that are alive reproduce, grow, self-maintain, and evolve, but there is something else, some as yet undiscovered quality that, when added, makes them alive. Deciding whether something is alive or not may also be just a philosophical question.

Viruses are studied under varying levels of isolation, in specially equipped labs, depending on the threat to life they represent. BSL-4, or Bio-safety Level 4 labs, are the safest and most secure laboratories in the world, but were never meant for common respiratory diseases, because of their (until now) low threat level. There are only 51 BSL-4 labs currently in operation, in just 29 countries. They are characterized as a "box within a box," meant to handle the most deadly disease organisms on the planet - Ebola, SARS, and avian flu, to name a few.

Three levels of containment are built into each BSL-4 lab. The

first and second levels are composed of HEPA filters that prevent the escape of organisms to the outside, as well as biohazard suits and gloves. The third level contains air locks, walls, doors, sterilizers, kill tanks, and chemical showers. The last level is composed of security systems and fences. All facilities are kept at negative air pressure to ensure that any air leaks will result in outside air moving into the lab rather than inside air moving to the outside.

66

25 June 2029 Monday
Canberra, Australia

The sliding glass doors to the Emergency Room of the Centenary Hospital for Women and Children opened, and a middle-aged man rushed in, his face ashen, his eyes wide with panic. In his arms was an infant, wrapped in a blanket, crying, struggling to breathe. The man was followed closely by a woman nearly the same age, two teenage children, a boy and a girl, and an older woman. None were wearing masks.

The reception area they entered was chaotic, noisy, and full to overflowing with frantic parents and children of all ages. Most of the children, the youngest, infants, and toddlers, were sick, crying, coughing, some lethargic, and many cradled in the arms of their parents. Doctors, nurses, PAs, EMTs, and social workers were all circulating around, assessing priorities, needs, and conditions. The Nurse's Station was crowded with medical staff coming and going, talking with parents, exchanging information.

"Help, please help my boy," the man shouted, as he stood in the midst of the pandemonium.

Dr. Jennifer Hemsted, standing at one end of the Nurse's Station, clipboard in hand, was engaged in conversation with a young mother holding her sick child when she heard the cries for help. She quickly finished up with the mother, gave orders to the nurse at the desk, and rushed out, with a Resident, to the desperate couple.

“What seems to be the problem?” Dr. Hemsted asked calmly, already uncovering the infant and assessing his condition. The child appeared to be less than a year old, was listless and breathing rapidly, and with great difficulty. His face was flushed, his lips blue, and he felt very warm. Dr. Hemsted found his hands and looked at the fingertips. The nails were also tinged blue. The infant was cyanotic, starved of oxygen.

“He was fine yesterday,” the infant’s father said, still quite anxious, as he watched Dr. Hemsted examine the infant. “What’s wrong?”

“Get him in the back,” Dr. Hemsted told the Resident. “Put him on oxygen, and start him on fluids.”

The father passed the infant to the Resident, who hurried to one of the examination rooms in the back.

“You’re the parents?” Dr. Hemsted asked.

“Yes,” the father answered. “I’m Mathew Cortlandt. This is my wife, Ashley, and this is my mother-in-law, and our son and daughter.”

Mathew Cortlandt was a wealthy Canberra businessman and the son of a powerful member of Australia’s Parliament. The mother, Ashley Benton Cortlandt, was the daughter of Robert Benton, one of Canberra’s richest real estate developers.

Dr. Hemsted asked Mathew Cortlandt if the children could remain in the waiting room with his mother-in-law, and then asked him and Ashley Cortlandt to follow her back to where the infant was being treated.

“The child probably has RSV,” Dr. Hemsted said. “He’s also dehydrated. “We’re going to put him on fluids and give him oxygen to help him breathe easier. He also has a fever.”

“That can’t be,” Mathew Cortlandt insisted, while they walked toward the treatment rooms, incredulous that his son could have caught the disease. “Our daughter had a cold last week, that’s probably it. Probably that’s where he got it from. He couldn’t possibly have RSV. He hasn’t been in contact with anyone who’s had it. He’s been isolated for two months now.”

They reached the treatment room and entered. The parents rushed to the bedside where their child lay. Ashley Cortlandt gasped, shocked at the sight of her child being connected to so many wires and tubes. She wiped tears from her eyes and grasped the railing of the bed. Mathew Cortlandt, standing close behind her,

looked over her shoulder, his arms around her.

"He looks so small there, so fragile, Mathew," Ashley said quietly. Their son was on a bed, wrapped in a hospital blanket, strapped into a harness to keep him secure. He wore a little blue knitted cap. He was already on oxygen and receiving fluids from an IV inserted into a deep vein in his left leg, the favored spot for patients expected to receive long term care. The Resident and a Nurse were finishing up attaching leads to monitor heart rate, blood pressure, and respiration

"You said he was isolated? Isolated how?" Dr. Hemsted asked.

"Underground."

"Underground?" Dr. Hemsted asked, perplexed.

"Yes, underground," Mathew Cortlandt repeated, annoyed at the question. "Am I speaking a foreign language?"

"We live in a community where part of the residence is underground," Ashley Cortlandt explained. "It's self contained, self sustaining and secure. We have everything we need to carry on our lives in safety, just in case."

"In case of what?" Dr. Hemsted asked.

Mr. Cortlandt was now noticeably irritated at what he felt was becoming an interrogation. "Aren't you fucking paying attention to what's going on out there? People are rioting in the streets. Nobody is even working anymore. They're all protesting, shooting each other, blowing up pipelines, looting stores, and setting cars on fire. There's hardly a fucking place you can go anymore that you aren't putting your life in danger... or the lives of your family."

The Resident and the nurse looked at one another, surprised at the outburst.

Ashley Cortlandt quickly stepped in, taking hold of her husband's hand in hers, easing the tension.

Dr. Hemsted ignored the outburst. She checked the infant's temperature. 104 degrees F. She listened to his breathing. It was rapid and shallow, with a high-pitched wheezing sound on exhale. She asked the nurse to give the child 50mg of acetaminophen and to start some cooling sponges to help bring the temperature down.

"You say this just started a day ago?"

"It was two days ago," Ashley Cortlandt replied, "maybe three. But he wasn't bad. Some sniffles, sneezing. We thought it was just a cold. We gave him baby aspirin. He seemed to be fine... until yesterday. Then he started breathing a little harder and sounded a

little congested. But he still seemed okay. We've been isolated for two months. All of us. We homeschool our older children. We still didn't think it was anything more than a cold... and he'd get over it. We didn't think he could get RSV; there just wasn't anyone he could get it from. Then, this morning, it was worse. He started having trouble breathing. He had a lot of mucous, and he was warm. I knew he had a fever. I told Mathew we had to take him to the hospital."

"How old is your son?" The Resident asked.

"Ten months, Mathew Cortlandt replied, still annoyed.

"Eleven months," Ashley Cortlandt corrected him.

"Eleven months," her husband agreed. "Eleven months."

"It may be that you've done everything right to keep your son safe, but it's nearly impossible to keep a virus out of your home unless you live in a Level 4 bio-safety lab," the Resident explained.

Dr. Hemsted again said that all the symptoms pointed to RSV, but to be sure, she had ordered a rapid antigen test, and that would take about an hour to get results. To double-check and confirm the presence of RSV, she also ordered an RT-PCR test. It was a much more sensitive test, she told the Cortlandts, and could identify RSV particles in much smaller quantities than other tests. The results from that test, she said, would take a bit longer.

"How is that test done?" Ashley Cortlandt asked.

"It's simple. We just take a nasal swab," the Resident replied.

"We'll have the results in about two hours. In the meantime, we will do a CT scan of your child's lungs." Dr. Hemsted asked the Resident to order the tests. "That will tell us a lot, also. We'll let you know the results as soon as we get them back. We have your son on oxygen, he's getting fluids, and we'll continue to monitor his temperature. He's stable for now. I would like..."

Before Dr. Hemsted could finish, the Hospital Administrator, Dr. Jessica Taylor, entered the room.

"Mathew, Ashley, I heard you were here. I'm so sorry to hear about little David." Dr. Taylor walked across to the Cortlandts and gave Ashley a loose, quick hug and a limp handshake to David Cortlandt. She looked at the infant, examined the infant's hands, and looked to Dr. Hemsted.

"Jess, thank goodness you're here. Dr. Hemsted says she thinks David has RSV. How could that be? We were so careful. Mathew thought of everything - a secure gated community, air purifying

systems, health checks, ultra-sanitation, ... everything." It was impossible, Ashley thought, that, with all the resources at their disposal, they were unable to prevent a virus from entering their home.

"I'm sure Mathew did everything right, Ashley, but viruses can get through all but the finest filters." Dr. Taylor then turned back to Dr. Hemsted. "How far along in the diagnosis are you? Are you sure it's RSV?"

"We're still waiting for the tests to come back, but all the signs point to RSV. High temperature, severe congestion - probably bronchiolitis - cyanosis of lips and fingers, deep, gravelly cough. I've ordered a CT scan and blood work to confirm, and a Respiratory Pathogens Panel as well, just in case it isn't RSV."

"Did you order an RT-PCR?"

"In the works. I'd like Mr. and Mrs. Cortlandt to be tested also, as well as the mother-in-law, the children, and anyone in their household who could have come in contact with...

"What the hell is an RT-PCR?" Mathew Cortlandt erupted again, clearly still agitated and worried, cutting off Dr. Hemsted. "Why do we all need to take these tests?"

"The RT-PCR is a very sensitive test for RSV," Dr. Taylor explained. We take a sample of sputum from a nasal swab and isolate the genetic material, then make millions of copies of it and test for the presence of RSV-specific genes. It's very precise and accurate. If there is any doubt whatsoever about what the infection is, the PCR test will confirm it."

Dr. Taylor, taking extra pains to put Mathew Cortlandt at ease, explained that Dr. Hemsted would also do a Respiratory Pathogens Panel for other viruses, to be certain which virus was causing the problem.

"Between all the tests we've just mentioned, be assured, we will be certain what we are dealing with."

Mathew Cortlandt seemed satisfied with Dr. Taylor's explanation and agreed to the tests.

"Mathew, believe me", Dr. Taylor added, "it is extremely easy for viruses to enter homes. You may be doing everything right - washing your hands, sanitizing surfaces, wearing a mask, avoiding crowds. You can't test everyone that comes into your home, test your maids, delivery personnel, every time. All you have to do is miss one time - the wrong time - and it's in. It's nearly impossible to

avoid it altogether. You may not even feel any symptoms if you pick up the virus. You'll never even know it until someone who is very susceptible gets sick. It's not your fault, it's not anyone's fault, it's just that nowhere is completely safe forever."

Dr. Taylor touched Mathew Cortlandt's arm. "We will do everything we can for little David, use every resource we have at our disposal, to see that he gets better."

A lab tech appeared in the doorway, tapped gently on the door frame, and announced he was there to take a nasal swab of the infant.

"Come in," Dr. Taylor motioned for the tech to enter. The lab tech, with the help of the nurse, took a nasal swab of the infant and secured it in a sterile tube. He then labeled the tube.

Dr. Hemsted told the lab tech that he would also be doing nasal swabs on three adults and two teenage children. She asked Ashley Cortlandt if she could locate her mother and children for the lab tech, so that he could do nasal swabs on them. She also asked the nurse to go with them and find an unoccupied treatment room to do the swabs.

As they left, a radiology technologist arrived with a portable CT scanner to do a lung scan of the infant.

"How long will it take to do the scan?" Ashley Cortlandt asked, as they watched the tech set up the equipment.

"Not very long, a few minutes," Dr. Taylor replied. "It'll take an hour or so to get the results back. After the scan is read and the other tests come back, Dr. Hemsted will go over them with you, and we'll take the next step, whatever that may be. In the meantime, we're going to admit little David. We'll be better able to take care of him right here. A private room is being prepared right now, and we'll move him up there as soon as its ready. You and Ashley can go up there with him. There will be a bed for Ashley if she decides to stay."

"Thank you, Jess," Mathew Cortlandt replied, a bit more relaxed now.

"We'll let you know as soon as we know something."

Dr. Taylor and Dr. Hemsted left the room and walked out toward the Nurse's Station.

"You know there is a very good chance the boy will die." Dr. Hemsted said to Dr. Taylor as they approached the Nurse's Station. "You saw his condition. They waited too long to bring him in, Jess."

They stopped at the Nurse's Station just as the Resident joined them.

"They've all been tested," he said.

"And?" Dr. Taylor asked.

"The mother-in-law tested positive, the two children are clear..." the Resident said, then added, "for now."

"You'd better separate them. How about Mr. And Mrs. Cortlandt?"

"Being tested right now."

"They're probably positive too," Dr. Hemsted suggested.

"Wouldn't doubt it." Dr. Taylor replied. "Jen, I know the boy will probably die."

"Then why did you give the parents the impression we would save him? You should have at least started preparing him for the possibility."

"I wanted to give him something to hold on to. Not every infant dies. "

"Ninety-eight out of a hundred. And that boy is very sick."

Dr. Taylor stepped closer to Dr. Hemsted and confided to her in a low voice, "Mathew Cortlandt is a very wealthy patron of this hospital. He donates millions every year, allowing us to buy expensive equipment and supplies we'd be very hard-pressed to acquire in any other way. We have to bend over backwards for him and his wife, give them some hope, impress on him that we are doing everything possible to save his son."

"We *are* doing everything possible to save his son, Jess. We do everything possible to save every child that comes in here, regardless of how much money they have, or how much they give us."

"I know that, Jen. I wasn't suggesting anything else. Just make sure you throw everything you have at this virus. If his son does die, I want *him* to know that we did everything we could." Dr. Taylor looked at her watch. "Keep me posted. I've got to get back to running this hospital." She turned and walked off down the corridor.

Dr. Hemsted watched Dr. Taylor walk off, then asked the Resident, "CT scan come back yet?"

"Bronchiolitis."

Dr. Hemsted was noticeably disappointed, but not surprised. "He's probably going to wind up with pneumonia. Did he receive

palivizumab at birth?”

“One shot at birth.”

“Nothing after?”

“No.”

“Give him 50 mg of nirsevimab. And get him on a ventilator. Let me know when he’s been transferred to a room.”

Dr. Hemsted knew that nirsevimab and palivizumab were both excellent monoclonal antibodies specifically engineered to prevent the respiratory syncytial virus from entering respiratory tract cells. She also knew that nirsevimab, a newer, long-lasting treatment, was superior to palivizumab because it could be given as a single, intramuscular dose, while palivizumab requires a five-dose regimen, once per month, beginning at birth. Nirsevimab is also recommended if fewer than five doses of palivizumab were given.

The Resident nodded, said he would make sure the infant received the drug, then left, heading off toward the treatment room. Dr. Hemsted watched until he disappeared around a corner. She took in a deep breath, let it out slowly, staring off into space, thinking of the child and how grave his condition was, and what his likely fate would be. “What a tragic shame,” she thought, and walked off toward her office.

67

Less than an hour had passed since the Cortlandt baby had been given the shot of nirsevimab, when the Resident rushed into Dr. Hemsted's office. Dr. Hemsted was resting on a couch, her feet propped up on an arm, her eyes closed, her right arm resting across her forehead.

"The Cortlandt baby is worse... and the tests are back. It's definitely RSV."

"Surprise, surprise," Dr. Hemsted said as she sat up. "How much worse?" She stood up and started walking toward the door, the Resident following closely behind.

The Resident described the worsening condition to Dr. Hemsted as they walked briskly to the private room in the pediatric ICU. He also said the mother-in-law had taken the two teens home.

When they arrived at the private room, they donned masks and gloves and met the Cortlandts, who were frantic at this point. They, too, were masked and wearing surgical gowns. Dr. Hemsted went directly to the infant, who was still strapped into a carrier on the bed, still wearing the blue knitted cap and wrapped in a blanket. He was listless and breathing with difficulty. EKG wire leads lay draped across his body, attached at one end to contacts stuck to his chest, and at the other end to a monitor. His pulse, heart rhythm, blood pressure, blood oxygen saturation, and breathing rate lit up the monitor screen overhead. Beside the bed sat a ventilator, delivering air to the infant through hoses attached to an endotracheal tube taped to his face. His head was kept immobile by means of two

small pillows. Though Dr. Hemsted had seen countless infants dressed so, she never got used to the sight. Her heart sank as she placed her hand on the child's forehead, watching him struggle to fill his lungs with air. His eyes were droopy, red, and he whimpered off and on. His skin had a pale blue tint. A nurse, masked and dressed in a blue surgical gown and cap, was adjusting the air flow.

Dr. Hemsted looked closely at the endotracheal tube. She noticed small bubbles forming in the tube, a sign that mucous was filling it. She also heard a rattling sound. Before she could do a thing, the child went into respiratory failure. The overhead monitor began beeping loudly.

Mathew Cortlandt jumped up out of his chair, rushed to the infant, screaming. "What's happening?"

"Respiratory failure!" Dr. Hemsted immediately started chest compressions. She placed two fingers on the infant's chest, just below the nipples, and pushed rapidly, depressing the chest one-third to one-half its depth, thirty times. She repeated the compressions. Time was critical. Permanent brain damage can occur in as little as three to four minutes without oxygen, and death in four to six minutes.

"Take over," she yelled to the Resident. "The trach tube is filled with mucous, and we have to get it out!" As the Resident started chest compressions, replacing her fingers with his, Dr. Hemsted disconnected the hose from the endotracheal tube, grabbed a catheter, inserted it into the tube, and slid it down, being careful not to extend it beyond the end. Doing so might stimulate the vagus nerve, causing bradycardia or arrhythmia. She introduced a small amount of saline into the catheter to break up the mucous, added some oxygen, and then suctioned the mucous out. The infant's heart started up. Dr. Hemsted re-attached the ventilator hose, and the infant began to breathe more easily.

Mathew Cortlandt breathed a sigh of relief as color returned to his child's face. Ashley Cortlandt blotted tears from her eyes. "Thank you."

"We're not out of the woods yet," Dr. Hemsted replied. She told the Nurse to start the infant on ceftriaxone, an antibiotic that fights pneumonia and is often given following respiratory failure. "Your son has RSV, I'm afraid, and has a severe case of bronchiolitis."

Mathew Cortlandt looked on in disbelief, but said nothing.

"We didn't think he could get it at home. We were so careful.

I'm so sorry," Ashley Cortlandt pleaded.

"You've done everything right, Mrs. Cortlandt." Dr. Hemsted reassured Ashley. She had no energy or desire to cast blame on anyone at this point. It would serve no useful purpose. It was no one's fault. Both parents stood at the side of the bed, watching their son fighting for his life.

"He's stable again, and we have him on antibiotics and monoclonal antibodies. He's receiving supplemental oxygen and is on fluids to keep him hydrated." Dr. Hemsted then cautioned the parents. "We've done everything we can for him. The rest is up to him. He's certainly a fighter. We will keep a close watch on him. You can stay with him as long as you like. I will check back a little later."

Mathew Cortlandt protested. "There's nothing else you can do? There are no other drugs you can give him? That's it, we just watch him die?" He felt helpless, impotent, angry. All his adult life, he had faced challenges, uphill battles, lost causes, both in his business life as well as his personal life. He always won, always got his way. This time was different.

"Mr. Cortlandt, Mrs. Cortlandt, we are dealing with a very serious virus, one that attacks very young children and infants when they are most vulnerable. They haven't had time to build up an immunity. I'm sorry, I truly am."

"What about the anti-viral? It's supposed to kill the virus, isn't it?"

"It is, but it's not available yet. It won't be until later this year, or early next." Dr. Hemsted touched Ashley Cortlandt's arm. "I'll check back in a little bit. Don't lose hope."

Ashley Cortlandt thanked Dr. Hemsted.

Dr. Hemsted walked out with the Resident. "Watch him closely. Especially for signs that the trach tube is filling up again. You may have to suction again."

"How much longer do you think he has?" The Resident asked.

"A few hours a day. I don't know. Maybe he'll surprise us all and pull through."

The two parted. Dr. Hemsted returned to her office and fell onto the couch, exhausted. She closed her eyes and slept fitfully for about two hours, until she was awakened by Dr. Taylor.

"Anything new on the Cortlandt baby?"

Dr. Hemsted opened her eyes, looked up, the fog of exhaustion

quickly ebbing away, her eyes focusing. She looked up, Dr. Taylor standing over her.

“Anything new on the Cortlandt baby?” Dr. Taylor repeated.

Dr. Hemsted sat up and leaned back on the couch. “He coded.” She yawned.

“I heard,” Taylor replied. She sat down next to Dr. Hemsted. “What do you think?”

“I think he’s not going to make it, Jess. He’s fighting like hell, but it's progressed too far. He has severe bronchiolitis. It’s deep into his lungs. We have him on nirsevimab and ceftriaxone...

“He has pneumonia?” Taylor interrupted.

“No, not yet, but you know it’s a very common complication in advanced cases. So, I decided to pre-empt it. It’s just a matter of time. There’s nothing more we can do for him.”

“Nothing that a good vaccine wouldn’t take care of.” Taylor said.

“Or even the fungal anti-viral. That would be a godsend. But even that’s not looking good.”

“So I hear. Something about temperatures being too high for anti-viral production.”

“Dr. Hemsted!” A nurse rushed into the room. “The Cortlandt baby, he started vomiting, and his breathing...”

Dr. Hemsted and Dr. Taylor jumped to their feet and started toward the doorway. “Did you re-suction the trach tube?”

“We did, Doctor,” the Nurse said as all three raced out the door and headed toward the ICU. “He stopped vomiting, we cleared the tube, but he was still having problems breathing, and he was becoming more cyanotic.”

When they arrived at the ICU, they saw the Resident leaning over the infant, getting the tracheotomy tube back into place. The Cortlandts were on the other side of the bed, looking on, wide-eyed and frantic. Ashley Cortlandt was crying, pleading for the medical staff to save her child.

Dr. Hemsted rushed over to the bed, Dr. Taylor to the Cortlandts, to move them back out of the way.

Dr. Hemsted listened to the infant’s heart then breathing with a stethoscope. “What’s the blood oxygen?”

“O2 is 80%, blood is 6.92.” The Resident said, referring to the blood pH. Normal was about 7.4.

“Increase the oxygen flow.”

Suddenly, the infant went into cardiac arrest. Dr. Hemsted immediately started CPR. “Please... leave!” Dr. Hemsted yelled to the Cortlandts. “Jess, get them out!”

Dr. Taylor quickly ushered the protesting parents out, telling them the medical staff needed the room to treat the child. The Cortlandts initially resisted but reluctantly left, standing outside the doorway, watching.

The infant’s heart started up again, and the infant began breathing, but with great difficulty. He cried out, his voice gravelly and hoarse. Then he fell silent again.

“He’s crashing again!”

Dr. Hemsted leaned over the child again, performing CPR, depressing his tiny chest rapidly using two fingers. Ten times... twenty times... thirty... “Get the paddles!” Dr. Hemsted yelled. Then his heart started up... again. He cried out, waved his arms about, settled down, and started breathing normally. Dr. Hemsted stopped, listened with her stethoscope, stood up, strain evident on her face.

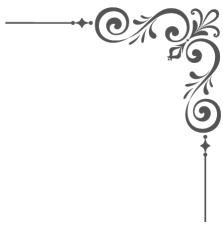
“Blood pH is 6.72,” the Resident said. It had dropped more.

Two minutes later, the child’s heart stopped a third time. The Resident started CPR, depressing the child’s chest at the rate of 120 times per minute. Dr. Hemsted called for adrenaline to be administered through the IV. She checked for a pulse. None. The Resident continued CPR. Dr. Hemsted called for pediatric paddles, told the Resident to step back, and applied shocks to the child’s heart. After no response, she tried again, then a third time with no response. She tossed the paddles aside and took over CPR from the Resident. After five minutes, the Resident spelled Dr. Hemsted. They alternated for fifty-four minutes, checking for a pulse every thirty seconds, before stopping.

“Call it.” Dr. Hemsted said solemnly.

The Resident looked at the clock. “Time, 3:38 am.”

All activity stopped. A nurse turned off the monitor and ventilator, then the harsh overhead lighting, leaving only a small light on over the bed. The room fell silent. Everyone remained in place, silent, looking toward the infant, lying motionless in the carrier. He was finally at peace.



68

The Cortlandt's child was just one of 365,109 children under the age of 5 to die that day, up from an average of 13,000 before the Pandemic. During the same twenty four hours, there were 385,000 births. Total deaths per day worldwide was now 517,000. The world population was decreasing by 132,000 every day. At that rate, humans would, theoretically, become extinct in 60,000 days - about 164 years. Of course, extinction would come much sooner than that.

Ninety-six million cases of Respiratory Syncytial Virus had been recorded to date worldwide since the pandemic began, and 75,594,785 had died. The mortality rate now stood at 95%. Only 5 out of every 100 children born each day could be expected to live to adulthood.

Regardless of station in life, of material wealth, political power, influence, or resources, the deadly virus touched everyone. No one could hide from it or guard against it for long. It spread with every breath expelled, with every object touched, from town to town, across continents, until it was everywhere. It would find a way into the tightest and safest of structures, given enough time. All it had was time. It was patient, devious, insidious, and resourceful, adapting constantly, staying always one step ahead, waiting for the slightest mistake or lapse in judgment. Its ability to mutate easily to avoid targeted anti-microbials made the development of a vaccine impossible so far.

Wildfires weakened defensive measures and enabled the spread

of the virus. They burned hundreds of thousands of acres in Spain, Australia, Germany, Canada, and the United States. The American southwest was suffering through the worst wildfire season in its history, even worse than the catastrophic fires that devastated parts of Los Angeles in 2025. More than eighty-five thousand buildings had burned to the ground, with one hundred and thirty five deaths.

Among the ruins was Terra Nueva, a secure, fenced, and walled community of 125 billionaire families just outside of Altadena, California, in the foothills of the San Gabriel Mountains. Billed at completion of construction in 2028 as “impregnable,” it was no match for the ferocity of a ninety-mile-per-hour Santa Anna wind-driven firestorm that raged through the area earlier in the year. Many of the residents who fled had young children, and many of those children caught RSV and later died.

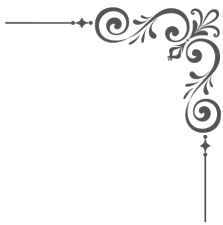
Adding to the difficulty of avoiding infection was the feeling that the pandemic would go on forever, that you just couldn’t wear a mask all the time, or not be with your family or friends, or go out for dinner, or a soccer game, or the movies, or a hundred other things that brought you into contact with other people. Elected officials amplified these feelings by politicizing every aspect of safety. They hadn’t learned anything from the Covid pandemic nearly a decade before.

Hospitals were overwhelmed, running out of medical supplies, drugs, beds, personnel. Healthcare professionals everywhere were being worn down, demoralized, and traumatized by the constant pressure, the never-ending deaths, the feelings of impotence, sadness, and depression. Despondency resulted in rising drug and alcohol dependency, marital abuse, divorces, and suicides.

Those medical professionals who did not succumb to the melancholy of constant death found some hope and support by joining ever-growing protest movements demanding governments recognize the critical importance of the fungal anti-viral as the only hope humanity currently had to stem the onslaught of the virus and assure the continuation of modern civilization. Though they suffered harassment and threats from a few extremist groups, counterprotests, in general, were waning as more and more people from all walks of life, across a wide spectrum of cultures, countries, and languages, began to find common ground and common cause in saving children. The path to that end was becoming more clear to people every day, no matter where they were born or what their

worldview was.

The answer was undeniable. The Boreal forests that had given birth to the anti-viral had to be saved... and to do that, the world had to get off of fossil fuels. The use of fossil fuels was no longer just an ideological difference of opinion, one that could affect life in the future; it was a matter of life and death now.



69

26 June 2029 Tuesday
Yellowknife, Northwest Territories Canada

Sara wasn't originally assigned to do the interview. There were a few other reporters who were closer, could get to Yellowknife easier, but Sara put up a very convincing argument. She had more background knowledge and experience in this subject area, she had been to Yellowknife and knew her way around, had been there when they discovered the mushroom, and most importantly, she had a rapport with Elder Russel Penkay and Dr. Emma Harris. Sara had spent a lot of time over the past year and a half interviewing each, getting to know them, discussing their work and philosophies, and hiking forest trails with them. NBC finally relented and let her go.

After Gary dropped her off at Sydney Airport, Sara went to the Departures Level and checked in at one of the kiosks. Afterward, she checked her luggage - one carry-on and one suitcase. Initially, she didn't think she would need the suitcase, planning to be in Yellowknife for only 2 days, but then she thought she might stay a day or two longer, maybe visit with Russel and do a little hiking, or just sightsee. She loved the area, the people, the mountains, the beautiful wide-open feel to the countryside. The craziness of the Pandemic and the developing revolt against Capitalist rule hadn't dramatically affected the area yet. So, she had packed another suitcase with enough clothes for a few more days.

It was just after five am when Sara arrived at the airport, and her flight didn't leave until seven. That gave her almost two hours kill. She checked out a couple of shops, bought a magazine, then a caramel brulee latte at Starbucks. She sat down at one of the tables and slowly sipped the latte as she watched a small group that had gathered to protest the government's failure to act on the Pandemic. A woman sang Bob Dylan's "The Times They Are A-Changin'" to the accompaniment of a guitarist, while a young girl, eleven or so, handed out flyers. The small protest was attracting a sizeable group of onlookers, many of whom joined in on the singing.

Sara was almost beginning to feel festive, until she was jarred back into reality by the appearance of armed guards. The singer was thrown to the ground and punched several times, then she and the guitarist were handcuffed and dragged off. Onlookers to the confrontation filmed the altercation with their phones and, alarmed at the unnecessary display of force, shouted for the officers to leave the protesters alone.

Within a few minutes, all the protesters had been removed, the guards had moved on, and things returned to normal - or what was passing for normal now. Sara looked down and noticed her hands trembling. She had dropped the nearly empty cup of latte onto the floor. She realized just how tenuous safety was, how quickly it could evaporate, and how easily things could get out of hand. Violence was becoming normalized. She picked up the cup, took a few deep breaths, closed her eyes for a moment, and regained her composure. She then checked her watch. Five forty two. Better go, she thought, as she shook her head. She got up, tossed the empty cup into a waste basket, and made her way toward security.

After passing through security, she walked to her gate, checked to make sure her ticket matched the gate information, and sat down again. The violence she had just witnessed made her think again about Gary, about their conversation a few hours before, about the dangers of getting involved in the protests. But, she knew there were no other options left; the world had run out of time. He had promised her he wasn't going to do anything crazy, though, and she believed him. It was just that he didn't have to do anything crazy to get himself killed.

She was also feeling a little jealous. Gary was actually trying to make a difference in the world. He was really helping people, trying to make life better. That counted for something. Sure, she was

reporting on the protests, providing a platform for advocates of an eco-social way of life, editorializing the need for radical change in the way we think about how to run the world, but Gary and all those other protesters were actually changing things. She envied them.

The flight attendant started calling for passengers to start boarding. Special needs first, then first class. Sara always flew regular commercial.

The flight was long, 14 hours 28 minutes, but felt longer because of the two kids, about 12 or 13 years old, running up and down the aisles most of the way. And then, there was the passenger four rows in front of her who got into an argument with another passenger, accusing him of stealing his hat. The disagreement descended into a shouting match before a flight attendant found the man's hat under one of the seats. Sara's faith in humanity's innate unworthiness to be spared extinction was validated.

After deboarding the plane in Vancouver, going through customs, and collecting her baggage, it was 5:07 pm local time, so she decided to get a drink and something to eat. She booked a room overnight at the Fairmont Vancouver, deposited her luggage in her room, freshened up a bit, and then went down to the lobby restaurant, had dinner, and a glass of wine. Disturbing images of the violence she witnessed earlier in the day kept replaying in her mind.

After dinner, she went back up to her room on the third floor. She let herself in, locked the door behind her, kicked off her sneakers, and lay down on the bed to watch the news. At some point, she closed her eyes and fell asleep.

It was dark when Sara opened her eyes, looked up at the ceiling, and realized she'd fallen asleep. The TV was still on. She looked at her watch. It was 9:30. Two thirty am in Canberra, she thought. She got up, went over to the window, and pulled the curtains closed. She found her phone in her purse and speed-dialed Gary's number.

"Hello," a sleepy voice said on the other end.

"Sorry to wake you, but I just wanted to hear your voice," Sara said.

"That's fine. How was the flight?"

"Okay... long. You know." She decided she wouldn't mention the airport protest. No need. It would just upset Gary.

"Yeah, 14 hours and some. Flying to Yellowknife tomorrow?"

“Yes. The flight is at 6 am. Two and a half hours. Arrive 7:30 local time. Dan is supposed to pick me up at the airport. I think the interview is at 11 am.”

“Say hi to Russel.”

“I will. You know I love you, right?”

“I do, and I love you, too. Something wrong?”

“No, I just wanted to tell you. Maybe I don’t tell you enough.”

“You do tell me enough, but you can always tell me again.”

“I love you... And I miss you. I love my job, Gary, you know I do. I love what I do, but the travelling... being away from you so much.”

“You’ll be back in a couple of days, right. Do the interview and come back?”

“Yes. Should be.” Sara paused for a few seconds. She wanted to say something about his arrangement with Russel, and its dangers, but decided not to. No sense dredging that up. They already discussed it, and Gary said he would be careful. He couldn’t leave it to someone else. She knew that, too. She was proud of him in a way, trying to do the right thing, being part of the solution.

“How’s the weather in Vancouver?

“Pretty nice. It was raining when we landed, but it cleared up. I had a beautiful view of the Coast Mountains and the Pacific Ocean on the way in. It is really beautiful here, Gary, British Columbia, I mean. So green. The trees are gorgeous, so tall and straight. So much natural landscape. From the air, you would think there weren’t any people anywhere. The trees are growing right up to the shoreline. The coastline is rugged... and the waves breaking on the rocks.” Sara paused. “We should move here, I mean, I could get very used to it. So peaceful.”

“I’m free. You could work from anywhere, just about... an’ I’m looking for a job... ” Gary mused. “So, when do you want to move?”

Sara laughed.

“I’m serious, Sara. Why not? The world is going to hell, might as well spend the end days in a place we love.”

“We’ll talk about it, but I do agree with you. Right now, I’ll let you get back to sleep. I’ll give you a call tomorrow night.”

“I love you, Sara Campbell. And don’t worry, I will be careful, I promise. I’ll talk to you tomorrow. Nite, sweetie.”

“Good night, an’ I love you too.” Sara hung up. She sat on the edge of the bed for a moment, staring at the TV. On the screen were

pictures of police in riot gear striking down protesting dockworkers in Gdansk, Poland.

The next morning, at 4 am, Sara got an automated wake-up call from the lobby. She had set her own alarm on her phone, as well, just in case. It went off just as she hung up from the automated call. She lay on the bed for a few moments and then got up, showered, brushed her teeth, got dressed, packed up everything, and went downstairs to the lobby. It was too early to get breakfast, so she checked out and headed toward Domestic Departures. Traffic was light in the terminal. On the way, she stopped at a Starbucks and had a coffee and a danish, bought a magazine at a news stand, and made her way through security and on to Air Canada.

It was 5:35 when she arrived at the gate. She sat down, checked her tickets, and looked up at the screen to check the flight information. The flight was on time, departing at 6:05 am. She looked around to see about 25 or 30 people waiting to take the same flight. “No kids,” she thought, “that’s a plus.” Sara took out her phone and played a game of “Woodie” on it until it was time to board.

The flight to Yellowknife was uneventful. The plane, an Airbus 319, was one of five that operated out of Vancouver International Airport. It had a range of 2760 miles and a cruising speed of 520 miles per hour at an altitude of 35,000 feet. The flight to Yellowknife, almost due north from Vancouver, took 2 hours and twenty nine minutes. She watched the sun come up on the way.

Dan Burns, Sara’s cameraman, met her in the terminal at Yellowknife. Dan had arrived in Yellowknife the night before, had taken an earlier flight from Sydney to spend some time with his brother in Calgary. They took the Frontier Trail Road and Highway 4 into Yellowknife, stopped at the Explorer Hotel so Sara could check in and drop off her luggage, then had some breakfast at a little local restaurant a few blocks from the hotel.

Dan was excited about his visit with his brother a few days before and had to tell Sara all the details. He hadn’t seen his brother for four years, ever since his brother had flown to Calgary to meet a woman he’d been talking to online for a year. Dan said his brother and the woman hit it off right away, fell in love, and his brother decided to stay in Calgary. They married a few months later. She was pregnant now with their first child. They knew the risks, but were aware of the White Birch Bolete and its anti-viral properties,

and had access to it through friends living in Hay River.

It was nearly 10:30 am when they finished breakfast, and Sara looked at her watch. Her appointment to interview Russel Penkay and Emma Harris was at 11 am at the Government of the Northwest Territories, Department of Lands Headquarters. The HQ was in Yellowknife, not too far from the restaurant, so Sara paid the bill, and the two drove the three blocks to the government offices. Inside the Entrance they met Russel.

"Sara, so good to see you again," Russel said as he hugged Sara. "It's been a while."

"And it's good to see you, Russel. Yes, the last time was in Bonn... in February."

"Ah, yes, the COP. How have you been?"

"As well as can be expected, under the circumstances, Russel," Sara said. "Russel, this is Dan Burns, my cameraman. You met before?"

"I don't believe so. Anyway, hello Dan. Nice to meet you."

"Good to meet you, too, Russel."

"How is Sadzee?"

"She is well. She asks about you and Gary. In fact, she would like you to come for dinner tonight.

"I'd love to. Thank you, Russel.

"And you too, Dan. Come for dinner."

"Yes, thank you."

"Well, come, let's go upstairs," Russel said as he gestured toward the stairs.

As they walked toward the staircase, Sara leaned in toward Russel and quietly said, "We need to talk about Gary."

Russel nodded. "Of course, we'll talk tonight." Russel knew Sara wanted to talk about his recruitment of Gary.

Russel, Sara, and Dan climbed the stairs to the second floor, and Russel led the way to an office about halfway down the hallway. As they entered, Sara saw Emma Harris. She was sitting at the far end of the room, on a couch.

Emma stood up and walked over to meet Sara. "Sara!" Emma's eyes lit up, and she smiled.

"Emma," Sara said, also smiling. "It's good to see you again."

"You, too," Emma said. "I wish it were under better circumstances."

They hugged.

“I know,” Sara said. “So, how have you been. I see you’ve been arrested a few times since we last saw each other.”

“Yes, unfortunately, it seems it’s the only way to get anything done now. It’s not something I ever thought I would be doing, but... ”

“I understand. I do. Gary feels the same way.” Sara was among kindred spirits. As a reporter, she knew she had to be impartial in her reporting. Present the news in a balanced manner. But, personally, she agreed with Russel and Emma, knew capitalism had run its course, that it was no longer benefiting humankind or the natural world. It was now a destructive force promoting inequality that was tearing apart society and destabilizing Earth’s natural balance. Emma, Russel, and Gary were right to be angry, to be terrified of the future, to want to force change.

70

Russel was anxious to get on with the interview. “We have a busy few days ahead of us, Sara, so we should get started. How would you like to do this?”

Sara explained she would like everyone to be comfortable. Emma and Russel could sit on the couch, and she would sit in the armchair across from them. She went over the subjects she wanted to cover while Dan set out a couple of carafes of water, set up the camera, recording equipment, furniture, and lighting. He gave them all mics to clip onto their clothing, and they all settled into their seats.

Sara opened the interview by introducing Russel and Emma, and providing a bit of background context on each. Then she dove into the interview.

“Elder Penkay,” Sara began, “you are overseeing the containment and protection of the Mushroom Complex area, what’s now being called the ‘MycoArboreal EcoZone’. That must be a monumental task. Can you give us an update on how that is progressing?”

“You are right, Ms. Campbell, it is a huge and very complicated undertaking. We are trying to secure an area of 1.6 million square kilometers, which goes through some of the most pristine, beautiful, and rugged areas on the planet, without destroying them in the process. The perimeter is a nearly continuous fence 4335 kilometers in length, 10 feet high, running through forests and wetlands, over mountains, around lakes and ponds, and across

rivers."

"Can you give us an idea of the boundaries of the Complex?"

"Yes, of course. The area is triangular in shape with the points at the northernmost Canadian-Alaska border at Inuvik, at Ennadai, Nunavut, and at Fort Liard, Northwest Territories."

"The area is also home to the Dene People?"

"Yes, that's true, Sara, and has been for millennia. It is sacred land that has provided us with food, shelter, clothing, and medicines, including the White Birch Bolete. The spirits of our ancestors still roam the land here, and we have a connection to them that goes back to the beginning of our People. We do not own this land; no one does. We are just temporary caretakers, stewards, as all humans are, to all the lands of Mother Earth. We have a responsibility to treat it with respect, to live within its bounds, to take no more than it is willing to provide us, and to pass it on to our descendants no more degraded than when we received it."

Russel stopped to take a drink of water from his glass, then set it back down on the table next to him. "And yet, here we are, erecting a fence around it, building roads within it, flying aircraft above it, shattering the peace and quiet, disturbing countless beings, scouring the earth to harvest a medicine that would save us from a scourge that humans in their drive for never-ending growth and material wealth, most probably are responsible for creating."

It was evident Russel was not happy. Quite the contrary, he was very unhappy that the Dene had to treat the land so disrespectfully, even if it was temporary, but felt they had no choice, given the circumstances.

Sara felt obliged to allow him to expand on that point. "Why, then, did the AFN vote to allow the project to move forward on their lands if the potential for permanent damage is so great?"

"We have a responsibility, as did our ancestors, as will our descendants, to be good caretakers of the land and waters, to protect them, and to preserve, love, and nurture all life connected to them. That includes innocent children. They have not yet been infected with the avarice of their parents, and it is for their sake, in the hope that they will choose a different, sustainable path, that we have agreed to open our lands to harvest the mushroom, but only if we retain control of operations on our lands. Our treaty with the Canadian government gives us the authority and legal right to do that. And, by having control over how the harvest is carried out, we

can prevent or mitigate much of the damage that would be done if we were not to participate."

"The treaty with the Canadian Government you are referring to is the Proclamation of 1763?"

"Yes. The Proclamation of 1763 granted sovereignty to Indigenous Peoples who held treaties and were allied with the British Government at the end of the Seven Years' War. That Agreement was transferred to Canada when Canada gained independence and is now a part of Canada's Constitution. We regard that Treaty as sacred and legally binding, and we take our responsibility to safeguard our lands very seriously... as we have done so for thousands of years."

Sara asked Russel if safeguards were in place to minimize the damage caused by the harvesting of mushrooms.

"To the extent that damage can be minimized, we have done so. Remember, we still have to carve up the area into small enough parcels to make the work manageable. The Canadian government has agreed to rely on Indigenous insight and recommendations to ensure that the modifications that are made to the land are as temporary as can be achieved, based on current knowledge of sustainable principles and practices. We do not know how long we will be harvesting because little progress has been made so far to produce a vaccine. Dr. Harris would be more qualified to speak to that."

"You started construction earlier than anticipated. Why was that?"

Russel took another long drink of water and set the glass down. "The original start date was late summer, and the reason for that was we wanted a better idea of the growing range of the Birch Bolete to properly enclose the area. That would have meant delaying harvesting until next year, and that was not acceptable, so we drew the boundary lines of the growing range based on the data Dr. Harris provided last year.

"We were able to start earlier for another reason, too, and that's because this past winter and spring were unusually warm. And thanks to the dedication of tens of thousands of hardworking people, both Indigenous and non-Indigenous, we believe we will be ready for harvesting beginning late summer."

"That's very good news." Sara then turned to Emma. "Dr. Harris, the program to develop an RSV vaccine is the biggest and most

costly medical research program ever undertaken. Thousands of laboratories and universities worldwide are working day and night to make a vaccine. It seems the virus is always one step ahead of researchers, though, mutating often and in ways making it harder to craft a vaccine that works reliably. I know you are following the program closely. Can you give us some idea of what, if any, progress is being made? Are researchers learning more about the virus, how it functions, and how it can evade targeted drugs?"

"I'm not a virologist, Sara, or involved in the vaccine research directly, so I can only tell you what I know so far from people I've talked to who are familiar with the research."

Dr. Harris went on to explain that, although research institutions around the world - Monash University, Australia; University College, London; Johns Hopkins and Harvard in the US; University of Copenhagen, Denmark; Karolinska Institute, Sweden, and others, as well as pharmaceutical labs - Pfizer, Astra Zaneca, Bristol Meyers Squibb, GSK, Merck, Novartis - were working hard to come up with a vaccine, they were continuing to have difficulties pinpointing the site (or sites) on the virus's genome where the mutations were taking place (or the triggers that were causing the mutations), and how those mutations were affecting the virus's ability to elude efforts to prevent it from penetrating a cell.

"As for the anti-viral," Dr. Harris continued, "most of the research going on in the world is directed toward deciphering the biochemical pathways the fungus uses to fight the virus. Scientists know the fungus does not kill the virus, but merely uses the unique polysaccharide to disable it. The virus is still able to penetrate the cell, but the polysaccharide deactivates it somehow, and then the body flushes it out of the system.

"There are so many moving parts to the equation that it is difficult to sort out all the parameters. Four different species are involved, two trees and two fungi, each connected to the others by a complex mycorrhizal network, a communication system, passing chemical information, inorganic compounds, and organic macromolecules back and forth between them, influenced by external environmental factors - light, temperature, moisture - as well as internal factors - chronological age of the trees. Researchers are still grappling for a way to understand how the complex system works."

The MycoArBoreal Complex was a perfect example of Systems

Ecology at work. The production of the antiviral by the White Birch Bolete could only be understood in terms of the tree-fungi association as a whole. Looking at the Bolete in isolation would be fruitless because, by itself, it could produce no antiviral. It required participation by all members. The antiviral could not be traced to any one gene in any one member. There seemed to be no single gene that coded for the anti-viral polysaccharide. Researchers were coming to believe that a combination of genes from all members of the complex acted in concert to produce a new chemical that disabled the virus. Researchers called the production of the anti-viral an "emergent property" of the system, a property that was not present in any of the individual members.

Sara asked Russel about the rumors that a few governments were trying to get preferential treatment or make special deals.

"I have heard the same rumors, but no one has contacted me asking for special treatment. I doubt anyone would approach me because I've made it common knowledge that I will not even entertain such a thought. I cannot speak for any Canadian Government officials, but I have talked to a number of lower-level agency officials who have heard the rumors. I wouldn't doubt that that is occurring, given the gravity of the situation. There are a great many private individuals with enormous wealth who are also trying to use their influence to curry favors and get special consideration and privileged access to the anti-viral. I would hope that they would be turned away... but I am a realistic person, and I know how the world works."

Dr. Harris added, "I believe we're going to have people from all socio-economic strata attempt to circumvent the system at every level of authority and all stages of production, to get the anti-viral... and that goes for the workers involved in the process, although it's hard to fault those at the bottom of the economic scale for trying. God knows they're the people who get the least, but deserve more."

"Have there been any attempts by individuals to break into the Complex to dig mushrooms?" Sara asked Russel.

"No, it is a little too early. The mushrooms won't appear for another month or so. After that, I suspect we may have some attempts to climb the fence. The fence is electrified, though... not enough to kill anyone," Russel assured the viewers, "just enough to change their minds."

"And you will be doing all the processing at Yellowknife as

well?" Sara asked.

"Yes, we have more control and greater security by keeping all the processing close. After harvesting, all the mushrooms will be airlifted to a processing plant in Yellowknife."

"Why airlifted?"

"To avoid unnecessary damage to ecosystems. We felt that constructing roadways all around the Complex EcoZone to collect and transport the harvested mushrooms would be too damaging. There will be helipads at 12 locations around the EcoZone, one in Yukon Territory, two in Nunavut, and nine in the Northwest Territories. Harvested mushrooms inside the Eco-Complex will be transported over temporary roads to the helipads, then airlifted to Yellowknife. From there, the mushrooms will be processed, then loaded aboard planes and flown to Ontario. There, the finished product will be flown to locations all over the world." Russel then added, "It is indeed a massive undertaking."

"Are the processing facilities already finished in Yellowknife?" Sara asked.

"Not completely, but we expect it to be up and running by the time the mushrooms begin fruiting."

Sara turned to Emma again to get a description of the process leading to the final product - the antiviral. "Can you give a layman's description of the process?"

"Sure. What is received at the plant is the harvested mushroom. It's dirty and mixed in with soil, plant parts, insects, spiders, bacteria, and a host of other microorganisms. It's quite different from what you would find in traditional mushroom farming."

Emma went on to explain why. "In traditional mushroom farming, conditions are more controlled, with few contaminants, following an accepted protocol, such as the Penn State Method. Under that Method, a moist straw-bedded horse manure mixture, enriched with nitrogen and gypsum, is allowed to ferment, generating ammonia and carbon dioxide, and quite a bit of heat - up to 180 degrees F. Pasteurization removes the insects and nematodes, and excess ammonia is drawn off to prevent suppression of fungal growth. The mycelium of the desired fungus is then added, along with lime and peat moss to keep the mix moist. The mycelia start to grow and eventually, after maturing, produce the fruiting body - the mushroom. It's pretty clean and can be processed easily.

“In our situation,” Emma explained, “we’re starting out with a mushroom, but also a lot of other things added in - bugs, spiders, dirt, twigs, and everything else you can imagine that comes from the forest floor. Once we separate the mushrooms from all the contaminants, the rest of the process is similar to that of traditional mushroom farming. The mushrooms are cleaned, dried in special ovens, and ground into a fine, uniform, pure powder. From there, the powder goes through the extraction process...”

“The extraction of the anti-viral?” Sara broke in to clarify.

“Yes, exactly,” Dr. Harris confirmed. “We follow traditional Chinese medicine in the extraction process, along with new technology, to purify the anti-viral component. The dried mushroom powder is macerated in hot, purified water, breaking down the cell walls of the mushroom, releasing the polysaccharide...”

“Just to clarify for our viewers. The polysaccharide is the anti-viral? That is what is released?”

“Yes, that is correct. The anti-viral polysaccharide is locked into the chitin and protein of the cell. The chitin and protein are dissolved in the extraction process, and the polysaccharide is released into the purified water. The rest is waste and settles to the bottom, and is drawn off. The purified water with the polysaccharide is sent to a spray drier, where it’s dried into a powder. The powder is packaged up and shipped out.”

“There will be people who will be concerned about quality control. Do you have anything to say to reassure them?

Dr. Harris rolled her eyes. “Please,” she said, obviously irritated, having to address conspiracy theories again. She had no patience or time for nonsense anymore. “There will always be people with concerns, and, frankly, it’s tiring to hear it all the time. First of all, the anti-viral is a completely natural product. We are not adding anything to it. Secondly, no one will be required to receive the anti-viral. If you don’t want your child to receive the anti-viral, then don’t have him or her vaccinated. But remember, RSV has a 95% mortality rate. Chances are very high your child will die without the anti-viral.”

Sara turned again to Russel. “Once the anti-viral is purified and packaged, how is it distributed to individuals? I understand that some type of lottery system has been decided on. That would be the fairest, wouldn’t it?”

“Well, as for determining who gets the anti-viral, and in what order, there is still discussion going on as to the best method.” Russel now was showing a little irritation, not at Sara, particularly, but at the prejudices that always seemed to influence who gets what first. He supported a modified lottery method, he told her, in which the most susceptible, regardless of wealth or social stature, would receive the anti-viral first, and there would be an equal chance that a high-risk child in Somalia would get the antiviral as a high-risk child in Canada. Russel admitted there was already strong pressure from rich countries and from private elites to gain preferential consideration.

The idea of preferential treatment, under any circumstances, had always been anathema to Russel, but now, when it came to the question of who should receive the antiviral, he was faced with an uncomfortable feeling of hypocrisy that was hard to reconcile. He had pushed through a resolution forcing the Canadian Government to reaffirm its recognition of the sovereign rights of the Dene First Nations over their lands, which included any part of the Mushroom Complex EcoZone that happened to be on their lands, and that the Dene First Nations would continue to live on their land in the same manner they had always done. That would include continued access to the Birch Bolete mushroom, its harvest, and inclusion in its diet in the same way they had been for millennia. The Dene would not give up that right. Rather than risk an ugly confrontation, something it had no appetite for, and knowing it needed the Dene to make the Harvesting successful, the Canadian Government agreed.

There were, of course, many in and out of the Government who saw it as preferential treatment, and they would be right, but Russel didn’t care. If it wasn’t for the Dene, there would be no anti-viral, and it was karma from Mother Earth, Russel told himself, payback for the White Man’s centuries-long exploitation of Native Peoples.

“The modified lottery is the fairest and is most likely to be the method used. Children from birth to five years old, who have, or are susceptible to respiratory problems, will be the first to receive the anti-viral. Also, those who are immunocompromised. Then, older children, those 5 to 10 years old, will get the antiviral next.”

What about older adults, those over 65?” Sara asked.

Dr. Harris spoke up. “To a great extent, in what order different segments of the population get the antiviral will be determined by

how much we are able to harvest. There have been some studies done that indicate one or more of the chemical pathways to polysaccharide creation are temperature sensitive, and the Boreal forests in Canada's Northwest Territories may be approaching those limits. We won't really know until harvesting begins and we're able to test for the presence of the polysaccharide."

"You won't be able to tell by the size of the harvest itself?" Sara asked.

"No, because the Bolete mushroom may still form and mature at temperatures above which the polysaccharide forms. You could still have plenty of mushrooms, but some may lack the polysaccharide.

That sounds like it could be a hit or miss process," Sara observed. "How can you guarantee you won't be shipping out product that lacks anti-viral altogether?"

"It will mean testing every batch made to determine if it meets a minimum standard, a minimum anti-viral concentration. It will require a significant amount of testing and quality control, but that can be done. It's time-consuming, but it is absolutely doable." Dr. Harris said.

"I have to ask," Sara said, "what if temperatures in the Boreal Forest are too high and production of the polysaccharide anti-viral stops?" What happens then?"

"The interruption in production may be temporary, it may be spotty... there's a lot that can happen. It is possible the harvest could fail completely this year, but that is doubtful. We believe there is still room, but there is no certainty that there won't be some interruptions. The Arctic is big, and polysaccharide production is not likely to stop everywhere. Some areas will still be cold enough to be productive. But, if we do not take the necessary steps to protect the Boreal Forest, that means elimination of fossil fuels, we will reach an upper limit eventually - maybe next year, maybe in five years - but we will reach it, and then the anti-viral will cease to be produced. That is guaranteed." Dr. Harris took a drink of water, then set the glass down. "We are still very far from creating a vaccine artificially in a lab."

"Do you have a supply chain in place yet to distribute the anti-viral worldwide - and quickly? During the Covid 19 Pandemic, supply couldn't keep up with demand, at least initially."

"That's being worked on," Russel replied. "The anti-viral produced in Yellowknife will be flown to Ontario and Vancouver by

Air Canada and Air Canada Express. From there, it can be shipped worldwide."

Sara thanked Russel Penkay and Dr. Emma Harris for their time, and the interview ended. Dan turned off the camera, shut off the feed to the microphones, and they all removed them and handed them to Dan. Emma and Russel got up. Russel stretched a bit.

"When will this interview air?" Russel asked.

"Probably later today," Sara said as she stood up. "They'll edit it first for length and then decide where to fit it in. But it should be later today.

Good," said Russel. "Sadzee and I would love it if you could come to dinner tonight. We could catch up a bit... and you, too, Dan, if you are still free. Emma will be there also."

Dan nodded in the affirmative. "Love to, Russel. Thank you."

71

That evening, Sara, Dan, and Emma sat down to dinner with Russel and Sadzee, Russel's wife. Conversation was light and enjoyable, and the food was delicious. All steered clear of any serious issues and, for a few hours, just enjoyed each other's company. After dinner, Emma and Dan helped Sadzee clean up, while Russel and Sara talked in the living room.

"Dinner was delicious, Russel, and it was good to see you and Sadzee again." Sara sat down on an old couch in the living room, across from Russel, who had chosen an old wooden rocker, which creaked and groaned as he slid into it. The room was sparsely furnished, utilitarian, with just enough furniture for comfort, enough for two people who entertained rarely, but had grandchildren over often. A few handmade toys and dolls were scattered about the floor, a child's fishing rod stood against a wall in the corner, alongside a larger one, with a simple metal tackle box between them. The room was small, dimly lit by a simple lamp on a small table beside the couch. The light from the kitchen added a warm, comforting glow to the room.

"Where is all this headed, Russel? It doesn't seem real. Can things really be coming to an end? Can civilization really be ending? I know, empires and states have come and gone - Rome, the Assyrians, Greece, even the Mayans. Nothing lasts forever. I'm young, and I haven't known anything but stability. I haven't grown up in the world you have, seen the things you've seen. I mean, there have always been wars, fighting, poverty, pandemics, people

protesting - but this seems different."

"It seems different, Sara, because it is different... this time the civilization is not just a regional collapse, it is global, because everything is connected. All those things you mentioned - wars, pandemics, poverty, inequality, destruction of nature - they have not always been a part of our world, but they have been for a long time. There was a time when humans lived in balance with Mother Earth. All those things poisoned the air, the water, the land, the spirits within us. They are the products of a destructive way of life, from a life spent worshiping money, possessions, and status. In the beginning, Mother Earth absorbed the excess poisons and kept everything in check, but they kept accumulating, building and building, until now, Mother Earth can no longer absorb them. She, too, is sick. They are not isolated any longer; they are found everywhere."

"The checks and balances that kept us safe for 10,000 years are failing," Sara added.

"Yes," Russel said, "and if we don't force change to get us back onto the right path, we humans face extinction. The virus is the most recent and most visible symptom of our greed. Before the virus emerged, and made matters worse, humans still faced a hard future from the changing climate, but humans would have persisted. If we lose the extra time Mother Earth is giving us..."

"You mean the anti-viral... from the mushroom?" Sara interrupted.

Yes, Mother Earth has given us the anti-viral to buy us time to develop a vaccine, and if we squander that by preventing the anti-viral from forming, and the population crashes, society will break down, and we will lose the technology to ever develop a vaccine. That will spell the end of us. We will just be another species that evolved and then disappeared. I have read that 99% of all the species that have ever lived are now extinct. We will be just one more. We will join the other human species we once shared the Earth with. Mother Earth will adjust, find a new equilibrium."

"Humans will never be missed," Sara said, "because we gave nothing positive to the balance. How sad that humans came to feel that we are the culmination of evolution, its goal, its purpose - to produce us. That we are the reason for it. What tragic arrogance."

"We are merely another species, one among millions that share the Earth. No more important than any other. It is unfortunate that

our intelligence has led us astray, led us to believe that we are more important, and falsely allowed us to assume all Mother Earth's resources were ours for the taking. We do not own anything. Nothing belongs to us. We merely share it, use it while we are here, but we are expected to return it when we are done, to be recycled."

"It is still so hard to accept that we could be facing extinction, even knowing the facts and looking at the logic. It should be easy to see it, and it is - I mean, I do believe it is true... it is happening... but emotionally... I can't..." Sara's voice trailed off as she grappled with the reality of societal collapse.

"That is why we must create a mass movement, one that is worldwide. One that is so powerful that it will stop world economies, that it will stop world politics and governance. We must start over and choose a different path. It is our only hope, Sara."

"When all these protests started, I naively thought they were the wrong way to solve this problem, that elections supported by mass movements would be more effective. But now I see we don't have the kind of time it would take to get the right politicians into office." Sara admitted. "We should have done that fifty years ago."

"Getting people into office is also not the same thing as having power to change things," Emma said, entering the room, followed by Dan. She sat down next to Sara while Dan dragged a chair over and sat down next to Russel.

"Money is power, Sara, you know that. All over the world, there's a disconnect between the people who govern and the people who elect them. The people who govern listen to the people with money - the people with power. Capitalists have enormous power and unlimited wealth. The average person can't compete and has no influence.

"The only thing that can compete with wealth is fear - fear from mass movements," Russel said bluntly. "Mass movements can be more powerful than wealth."

"Mass movements empower people, give them a feeling of belonging," Emma explained. "When I protested in Ottawa, Sara, I felt as though I was making a difference. All the bullshit of boycotting the COPs all those years, or writing editorials, doing interviews - none of that had remotely the same effect on politicians or felt as good as the protest outside Parliament."

"Gary said the same thing."

"Gary is right. Now multiply that protest by a hundredfold - by a

thousandfold. Hundreds of millions of people are protesting in every country around the world." Russel added. "Acting as a single voice, focused on a single issue - eliminating fossil fuels, equality, sustainability, a circular economy - and not giving up."

"But look what happened to you in Ottawa, Emma. In the end, the government forces ended the protest. You were arrested. What about the protests in Bangladesh - the garment workers - they were beaten, the organizer murdered. Governments will just increase pressure, use more draconian measures. You will have to expand those protests exponentially to have the effect you are talking about. Can you do that? Can you build that kind of mass protest?"

"Protests as such are not the answer, Sara," Russel said. "Mass movements are. There is a fundamental difference between protests and movements. Protests are displays of discontent or anger over an issue some policy. Mass movements drive social change on a fundamental level. They change how society thinks, functions, and operates. Not just on an issue, like sending an army to fight a war in Vietnam, but on an idea, like slavery, or suffrage...

"...or world governance, capitalism, equality, energy," Emma added. "It presents a new Paradigm, a new concept on how the world should work."

Movements that are organized, composed of many hundreds of millions of people, taking place simultaneously in every country in the world, bringing every economy to a halt, and focused on a single issue - replacing Capitalism, saving our children, saving our world - speaking with one voice - that is the answer."

"Right now," Emma broke in, "people are protesting a lot of things - the Pandemic, the crushing infant deaths, and lack of progress, of course, but also people have been angry about the climate, equal pay, gender and class equality, poor working conditions, healthcare, wealth concentration, poverty, political disconnect..."

"All these things are related, Sara," Russel continued, "all these failures of society are failures of capitalism. Once people are educated to understand that capitalism is the root cause of social injustice, they will have common ground for a mass movement. But the movement must be committed, sustained, and resolute, continuing without interruption until demands are met. The movement must be composed of a wide cross section of society, all walks of life, all ideological and political philosophies, educational

backgrounds - very different people but all with a common objective - the replacement of capitalism with a just and equitable system that benefits all."

Mass movements, the ones Russel alluded to, have been instrumental in many profound social changes. Slave uprisings en masse during the United States Civil War prompted President Abraham Lincoln to issue the Emancipation Proclamation. The New Deal under U.S. President Franklin Delano Roosevelt might not have been possible had it not been for the spontaneous and menacing rise of rebellious protests, strikes, sit-ins by evicted tenants, and the unemployed during the great depression. Workers organized and occupied corporate properties, demanding help from unresponsive government officials.

In the winter of 2011, a series of mass protests shook the Arab World to its core. Open and sustained anti-government protests by angry citizens, fed up with failing economies, rampant unemployment, police harassment, corruption, and poverty, and demanding greater political rights, accountability, and economic equality, ended the reigns of strong-arm dictators, or forced reforms in countries like Tunisia, Libya, Egypt, Yemen, Bahrain, and Saudi Arabia. Protests in Syria were met with violent government repression, sparking a civil war that lasted for ten years and resulted in hundreds of thousands of deaths. In the end, Syria's al-Assad was forced to flee the country.

Quintin Hogg, a leading conservative in post World War II Britain, concerned that capitalism would exaggerate class differences, leading to discontent, warned his colleagues, "If you do not give the people social reform, they are going to give you social revolution."

"The very essence of a mass social movement," Russel said, "is large numbers of people acting in support of a common cause. Revolutions are mass movements that are so large that they threaten the basic power structure of society."

"Do you think that it's possible to organize and sustain a worldwide movement of the magnitude you are proposing, Russel?" Sara asked.

Russel said nothing for what felt like an eternity. "I don't know, Sara. What I do know is that we must try. I fear that this is truly our last chance."

Emma nodded in agreement, her face serious and sullen. Dan

stared at Russel for a moment, taking in the gravity of the comment, then looked at Sara. “You know he’s right,” he said quietly.

“I know he’s right, Dan,” Sara said. “I know Emma’s right... and Gary. I’m just afraid we won’t be able to build a big enough movement to overwhelm governments.”

“Sara,” Emma said, “that is why you, and everyone like you, is so important. We need you to keep doing what you’ve been doing. Keep it in the news, keep giving a platform to the Movement, and make sure no one forgets the issue.”

“Tomorrow I’d like to take you to the Complex, Sara, do a fly-over by helicopter to get a feel for the size and scope of the operation.” Russel fell silent again for a moment, thinking. He closed his eyes briefly, then opened them and looked to Emma, his eyes questioning. Emma knew what Russel was asking, and she nodded ever so slightly, giving her approval.

Russel turned to Sara. “Tomorrow, James deBrum will announce a press conference to be given the following day outside AFN Headquarters in Ottawa. I want you to be there.”

“A press conference for what?” Sara asked.

“To make a Statement - an Ultimatum, Sara.”

“Ultimatum about what, to whom?”

“You know the Assembly of First Nations, the African Union, and the Small Island Developing States have formed an Alliance to push for Climate Reform?” Russel asked.

“Yes,” Sara replied.

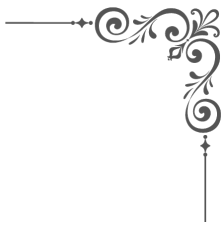
“Well, we have joined with a great many other like-minded groups - Earth Justice, XR, the Indigenous Work Group on International Affairs, Greenpeace, and others, to demand an end to capitalism and an immediate transformation to a just economic/political system. I know you were scheduled to go back to Sydney tomorrow night, but I want you to be there to report it.”

Russel told Sara that the Statement would not be just another plea for change, but would be an Ultimatum. He went on to explain in some detail what the Ultimatum was and what it would mean.

“That will up the stakes considerably, Russel, you know that. They will crack down harder. It will get bloodier.” Sara just said aloud what everyone already knew. “Are you prepared for that?” Sara’s gut was in an uproar. She felt lightheaded, thinking about the implications. She also agreed it was time to draw the line.

“Size is crucial,” Emma said. “Size, focus, sustained. If we don’t attain critical size, or sustain it, or keep the focus, it will fail. This is the most important mass movement humans will ever mount.”

Russel slid forward on his chair and reached out for Sara’s hands. She instinctively reached out toward his. He held her hands in his, gently squeezing, as if to emphasize the importance of the task before them. “That is why people like Gary are so important, on every continent, to help build and sustain this movement. And that is why you, Sara, and more people like you are critical, to report truthfully and accurately our predicament, to help keep the focus on the issues, to make sure people keep believing in this cause, and to make sure the power structure feels humanity’s need and desire for change. This is the moment for a new Paradigm, a shift away from the old “Self” centered system, to a new “All Inclusive” one.



Part 5

Paradigm

Man must be made conscious of his origin as a child of Nature. Brought into the right relationship with the wilderness he would see that he was not a separate entity endowed with a divine right to subdue his fellow creatures and destroy the common heritage, but rather an integral part of a harmonious whole. He would see his appropriation of earth's resources beyond his personal needs would only bring imbalance and beget ultimate loss and poverty for all.

Linnie Marsh Wolfe, 'Son of the Wilderness: The Life of John Muir'

72

28 June 2029 Thursday
AFN Headquarters Ottawa, Canada

Elder Russel Penkay stood at the podium on the stage in the front of a packed room at the Assembly of First Nations Headquarters in Ottawa, Canada.

"Thank you to all who are attending today's press conference. It is encouraging to see so many news organizations represented here. My name is Russel Penkay. I am a Dene Elder, and I represent the Dene and all the First Nations People of Canada."

Behind him, in upholstered armchairs, sat three women and four men. In front were reporters from the giants of the news industry, NBC, ABC, CBS, Al Jazeera, BBC, CNN, The Canadian Press, Canada's largest news agency, Reuters, Xinhua News Agency from China, Agence-France Presse, and Deutsche Presse-Agentur. Joining them were reporters from many local and regional newspapers and TV stations. Most had already been in the area, reporting on the continuing disruptions, protests, work stoppages, and strikes taking place outside Parliament, at corporate offices, and on the docks and transportation hubs in Toronto, Ottawa, Montreal, and Quebec. Thousands of people had gathered outside the building, anxious to hear what the coalition of socio-environmental, Indigenous, and Island Nations had to say.

"The people seated here behind me," Russel continued, "represent just a few of the many organizations around the world

who have endorsed the Statement we will be making here today. Together, we represent more than a billion members worldwide. But, we also represent all eight billion humans, and countless billions of non-human living beings on this planet. We are speaking for all of Mother Earth."

Russel looked around the room, caught sight of Sara sitting about a third of the way back. Their eyes met, and Sara nodded. Russel continued with his introduction. "Unfortunately, we will not be taking questions here afterward, but we will be available for interviews with individual news organizations over the next day or two. That way, we can devote time to questions you may have and be able to answer some of them in more depth. Just contact us after we finish here this morning."

Russel turned to his right and began to introduce the speakers. "First on the left is Dr. Emma Harris, Professor of Forest Ecology, and a mycologist, from the University of British Columbia. To her left is Mr. James deBrum, from the Marshall Islands, and the Chair of the Alliance of Small Island States. Next to Mr. deBrum is Ms. Juma Hamadi, with the Indigenous Work Group on International Affairs."

Russel then turned to his left to introduce the last three members. "Next is Ms. Kalilea Nubelo, Communications Director of Grassroots International. To her left is Hans Meisel, Chief Program Director with Greenpeace. On Hans's left is Nateli Handever, North American Representative of Extinction Rebellion. Last on your right is Josef Heylen, an attorney with the Global Alliance for the Rights of Nature." Russel turned back to the reporters and then asked James deBrum to come to the podium.

"Good morning," James deBrum started off. "Capitalism has been a remarkable economic system. Propelled by fossil fuels, capitalism has lifted countless millions from poverty, given us marvellous technical inventions, increased life expectancy, and helped eliminate and subdue diseases. It has enabled humans to develop modern agricultural methods that have enormously increased our food supply, making it possible to grow our population to more than eight billion, and built global communication and transportation networks that have connected people all over the world.

"But…", deBrum paused, looking out over the reporters for a moment. "Capitalism also has a very dark side. Capitalism has

treated Mother Earth as a limitless source of wealth, plundering, recklessly, its resources, and as a depository for our waste. The basic premise that Capitalism is built on is that the Earth's resources are infinite, and that economies can grow forever, creating ever increasing profits and wealth. That is simply a lie, a patently false premise... and a foolhardy one. We live on a finite planet with a finite amount of resources, and with a finite capacity to consume our waste and pollution.

"Capitalism has outlived its benefits. It has led to the Pandemic that is taking our children from us, to the concentration of wealth, to inequality, to the destruction of our environment, to the degradation and pollution of our lands, water and air, to the loss of biodiversity, to the disruption of Mother Earth's chemical cycles, and to the warming of our world... and threatening the very thing that can save our children - the Boreal Forest of Canada. Capitalism now threatens to set in motion the breakdown of society and the extinction of the human race. As long as Capitalism is allowed to continue its reign as the world's dominant economic system, there is no future for all life on Earth.

It is time for a new Paradigm, a new global governance and economic system. Capitalism must end and be replaced with an eco-socialist system, one that respects Mother Earth and values all living things."

James deBrum's reference to eco-socialism did not go unnoticed by the reporters.

"Let me repeat," James deBrum said. "It is time for a form of world governance that recognizes the natural rights of Nature and humans, one that is truly democratic and committed to social justice, one in which all of society participates equally, one that cooperates and shares, where each member is responsible to its neighbors, its community, to its country, and to the world at large. A society that restores the natural balance between humans and the natural world that existed in the distant past.

"You see everywhere now, discontent," deBrum continued. "People are marching in the streets, protesting, angry at our leaders and representatives, and demanding change... So..., change is what we are proposing here today." DeBrum paused for effect. The momentary silence was nearly deafening, as everyone in the room waited for deBrum to continue.

James deBrum held up a thin blue report. "This does not look

like much, but inside this report binder is the first step toward a new beginning - a new Paradigm. "We are calling upon all the world's nations - and its leaders - to accept and sign this *World Peoples Agreement Creating a Just System of World Governance*."

At the same moment Russel Penkay, Emma Harris, and Juma Hamadi were working their way around the room, distributing copies of the document to the reporters.

"This Agreement is based on three documents presented at the World Peoples Conference on Climate Change and the Rights of Nature, held in Cochabamba, Bolivia, in 2010. Those documents are: *Peoples Agreement on Climate Change and the Rights of Mother Earth*, *Indigenous Peoples Agreement*, and *Universal Declaration of the Rights of Mother Earth.* We will be quoting from these documents as part of the *World Peoples Agreement Creating a Just System of World Governance,* as we lay out our vision for a new World.

"It sets out the guiding principles of an EcoSocial Life and will be the template and guide from which we will derive the laws for an *EcoSocial System of World Governance*. We urge you to make it available to your viewers on your websites and in print. We will be sending copies to the heads of state for each country, and to news outlets worldwide, as well. We want the Agreement to circulate widely to the public so that everyone has a chance to read it."

James deBrum stopped for a moment, looking over his papers on the podium, then looked up again at the reporters. "The *World Peoples Agreement* is on our website at JustGovernanceES.org. It is freely available to download and print out, for anyone wishing to read it... and we encourage everyone to do that.

"The Agreement also calls for the creation of a democratically elected Commission of Indigenous Spiritual Leaders, made up of scientists, social scientists, health professionals, political scientists, philosophers, economists, lawyers, and private citizens from around the world, to produce a detailed Blueprint of Laws and Policy that support the Agreement.

James deBrum looked around the room to make sure everyone had received a copy of the *World Peoples Agreement*. Satisfied, he told the group they would then read through the pertinent parts of the Agreement, The Peoples Agreement, and the Universal Declaration on the Rights of Mother Earth. They were the documents that would be the guiding principles of the proposed New System of World Governance.

The first part of the *World Peoples Agreement* was read by Elder Russel Penkay, and summarized the current state of the climate.

"Today, our Mother Earth is wounded, and the future of humanity is in danger."If global warming increases by more than 2 degrees Celsius, a situation that the "Copenhagen Accord" could lead to, there is a 50% probability that the damages caused to our Mother Earth will be completely irreversible. Between 20% and 30% of species would be in danger of disappearing. Large extensions of forest would be affected, droughts and floods would affect many regions of the planet, deserts would expand, and the melting of the polar ice caps and the glaciers in the Andes and Himalayas would worsen. Many island states would disappear, and Africa would suffer an increase in temperature of more than 3 degrees Celsius. Likewise, the production of food would diminish in the world, causing catastrophic impact on the survival of inhabitants from vast regions in the planet, and the number of people in the world suffering from hunger would increase dramatically, a figure that already exceeds 1.02 billion people.The corporations and governments of the so-called "developed" countries, in complicity with a segment of the scientific community, have led us to discuss climate change as a problem limited to the rise in temperature without questioning the cause, which is the capitalist system."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

The *World Peoples Agreement* then went on confront the reason for the current unjust conditions. It was read by Dr. Emma Harris.

"We confront the terminal crisis of a civilizing model that is patriarchal and based on the submission and destruction of human beings and nature that accelerated since the Industrial Revolution."

"The capitalist system has imposed on us a logic of competition, progress and limitless growth. This regime of production and consumption transforming everything into commodities: water, earth, the human genome, ancestral cultures, biodiversity, justice, ethics, the rights of peoples, and life itself."

"Under capitalism, Mother Earth is converted into a source of raw materials, and human beings into consumers and a means of production, into people that are seen as valuable only for what they own, and not for what they are."

"Capitalism requires a powerful military industry for its

processes of accumulation and imposition of control over territories and natural resources, suppressing the resistance of the peoples. It is an imperialist system of colonization of the planet."

"Humanity confronts a great dilemma: to continue on the path of capitalism, depredation, and death, or to choose the path of harmony with nature and respect for life."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

The Agreement goes on to suggest an alternative to the current unjust and destructive economic and political system of governance. It is one that values all life and that is in harmony and balance. Juma Hamadi read next.

"It is imperative that we forge a new system that restores harmony with nature and among human beings. And in order for there to be balance with nature, there must first be equity among human beings. We propose to the peoples of the world the recovery, revalorization, and strengthening of the knowledge, wisdom, and ancestral practices of Indigenous Peoples, which are affirmed in the thought and practices of "Living Well," recognizing Mother Earth as a living being with which we have an indivisible, interdependent, complementary and spiritual relationship. To face climate change, we must recognize Mother Earth as the source of life and forge a new system based on the principles of:

- harmony and balance among all and with all things;
- complementarity, solidarity, and equality;
- collective well-being and the satisfaction of the basic necessities of all;
- people in harmony with nature;
- recognition of human beings for what they are, not what they own;
- elimination of all forms of colonialism, imperialism and interventionism;
- peace among the peoples and with Mother Earth;

The model we support is not a model of limitless and destructive development. All countries need to produce the goods and services necessary to satisfy the fundamental needs of their populations, but by no means can they continue to follow the path of development that has led the richest countries to have an ecological footprint five times bigger than what the planet is able to support. Currently, the regenerative capacity of the planet has been already exceeded by

more than 30 percent. If this pace of over-exploitation of our Mother Earth continues, we will need two planets by the year 2030. In an interdependent system in which human beings are only one component, it is not possible to recognize rights only to the human part without provoking an imbalance in the system as a whole. To guarantee human rights and to restore harmony with nature, it is necessary to effectively recognize and apply the rights of Mother Earth."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

Kalilea Nubelo continued.

"Harmony and balance can only exist if there is love and respect for Mother Earth, for She is no less entitled to protection from harm than humans. Therefore, Her rights are enumerated in the Universal Declaration of Rights of Mother Earth."

"For this purpose, we propose the attached project for the Universal Declaration on the Rights of Mother Earth, in which it's recorded that:

- The right to live and to exist;
- The right to be respected;
- The right to regenerate its bio-capacity and to continue it's vital cycles and processes free of human alteration;
- The right to maintain their identity and integrity as differentiated beings, self-regulated and interrelated;
- The right to water as the source of life;
- The right to clean air;
- The right to comprehensive health;
- The right to be free of contamination and pollution, free of toxic and radioactive waste;
- The right to be free of alterations or modifications of it's genetic structure in a manner that threatens it's integrity or vital and healthy functioning;
- The right to prompt and full restoration for violations to the rights acknowledged in this Declaration caused by human activities."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

"To comply with Article 2 of the United Nations Framework Convention on Climate Change, developed nations must commit to significantly and permanently altering their lifestyle patterns in a

manner that reduces greenhouse gas emissions and brings the concentration of carbon dioxide in the atmosphere to 300 ppm, while doing so in a manner that honors the Rights of Nature."

"The "shared vision" seeks to stabilize the concentrations of greenhouse gases to make effective the Article 2 of the United Nations Framework Convention on Climate Change, which states that "the stabilization of greenhouse gas concentrations in the atmosphere to a level that prevents dangerous anthropogenic inferences for the climate system." Our vision is based on the principle of historical common but differentiated responsibilities, to demand the developed countries to commit with quantifiable goals of emission reduction that will allow to return the concentrations of greenhouse gases to 300 ppm, therefore the increase in the average world temperature to a maximum of one degree Celsius."

"Emphasizing the need for urgent action to achieve this vision, and with the support of peoples, movements and countries, developed countries should commit to ambitious targets for reducing emissions that permit the achievement of short-term objectives, while maintaining our vision in favor of balance in the Earth's climate system, in agreement with the ultimate objective of the Convention."

"The 'shared vision for long-term cooperative action' in climate change negotiations should not be reduced to defining the limit on temperature increases and the concentration of greenhouse gases in the atmosphere, but must also incorporate in a balanced and integral manner measures regarding capacity building, production and consumption patterns, and other essential factors such as the acknowledging of the Rights of Mother Earth to establish harmony with nature."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

Hans Meisel picked up the thread here.

"Developed countries, as the main cause of climate change, in assuming their historical responsibility, must recognize and honor their climate debt in all of its dimensions as the basis for a just, effective, and scientific solution to climate change. In this context, we demand that developed countries:

• Restore to developing countries the atmospheric space that is occupied by their greenhouse gas emissions. This implies the decolonization of the atmosphere through the reduction and

absorption of their emissions;

• Assume the costs and technology transfer needs of developing countries arising from the loss of development opportunities due to living in a restricted atmospheric space;

• Assume responsibility for the hundreds of millions of people that will be forced to migrate due to the climate change caused by these countries, and eliminate their restrictive immigration policies, offering migrants a decent life with full human rights guarantees in their countries;

• Assume adaptation debt related to the impacts of climate change on developing countries by providing the means to prevent, minimize, and deal with damages arising from their excessive emissions;

• Honor these debts as part of a broader debt to Mother Earth by adopting and implementing the United Nations Universal Declaration on the Rights of Mother Earth.

The focus must not be only on financial compensation, but also on restorative justice, understood as the restitution of integrity to our Mother Earth and all its beings."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

The Agreement went on to scold countries for attempting to annul the Kyoto Protocol, which binds all developed countries to reducing greenhouse gases. It reminded them that, instead of reducing emissions, developed countries have, instead, increased them consistently, year by year. The United States has been especially egregious in this respect, while being the only country to refuse ratification of the Kyoto Protocol. Not mentioned in the Agreement was the withdrawal from participation in the Convention by the United States in 2025, with the election of far-right anti-climate populist Donald Trump as President, and continuation of that policy by David Wainright after his election in 2028. The Agreement called for binding commitments to target reductions by all developed countries.

The rest of the Agreement, read by Nateli Handever and Josef Heylen, dealt with demands that developed countries protect peoples of developing countries from the ravages of future climate change, as well as paying for past destruction. It rejected the notion of adaptation as a sole reaction to climate effects, and instead asserted that adaptation should be used in conjunction with a

complete lifestyle change that is in keeping with the Rights of Mother Nature. It also called for the establishment of an Adaptation Fund contributed to by developed countries that, through a clear and transparent process, could be distributed to developing countries, without unreasonable conditions.

Agribusiness was tackled next. Its alignment with capitalist ideology ignored the primary reason for food production - proper nutrition - and was causing a profound and detrimental effect on food production. Changes in agricultural practices toward a more sustainable model used for millennia by Indigenous Peoples were necessary to protect the soil, reduce agrochemical use, and conserve water. Too many crops were being grown in areas that were not meant to support them. Forested areas were also being clear-cut to make way for monoculture farms, contributing to biodiversity loss and placing humans in closer proximity to novel disease vectors.

The Agreement denounced mega-infrastructure projects that displaced Indigenous Peoples from their lands to "fight climate change", or to extract mineral resources, with a promise of royalties, when in reality, the benefits always went to the rich while the poor lost their land and suffered greater inequality. The U.N. Declaration of Rights of Indigenous Peoples must be recognized, as well as their sovereign rights to their land, and their right to be included in all good-faith negotiations involving their interests.

Climate refugees and migrants had been a lightning rod issue for many years as climate change amplified socio-political and economic problems in many developed countries, leading to mass migration within and across national borders in search of food, water, security, and a better life. The Agreement addressed the issue of migrants and migration next.

"We call upon States to recognize, respect and guarantee the effective implementation of international human rights standards and the rights of indigenous peoples, including the United Nations Declaration on the Rights of Indigenous Peoples under ILO Convention 169, among other relevant instruments in the negotiations, policies and measures used to meet the challenges posed by climate change. In particular, we call upon States to give legal recognition to claims over territories, lands and natural resources to enable and strengthen our traditional ways of life and contribute effectively to solving climate change."

"We demand the full and effective implementation of the right

to consultation, participation and prior, free and informed consent of indigenous peoples in all negotiation processes, and in the design and implementation of measures related to climate change."

"Environmental degradation and climate change are currently reaching critical levels, and one of the main consequences of this is domestic and international migration. According to projections, there were already about 25 million climate migrants by 1995. Current estimates are around 50 million, and projections suggest that between 200 million and 1 billion people will become displaced by situations resulting from climate change by the year 2050."

"Developed countries should assume responsibility for climate migrants, welcoming them into their territories and recognizing their fundamental rights through the signing of international conventions that provide for the definition of climate migrant and require all States to abide by determinations."

"Establish an International Tribunal of Conscience to denounce, make visible, document, judge and punish violations of the rights of migrants, refugees and displaced persons within countries of origin, transit and destination, clearly identifying the responsibilities of States, companies and other agents."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

Funding was a serious issue because few developing countries actually contributed money, even though they promised to do so. The Agreement decried the lack of commitment on the part of developed countries, and especially the inability of the UNFCCC to force compliance or be able to take legal action against countries that commit climate crimes. It therefore demanded the formation of an International Climate and Environmental Justice Tribunal to try cases of climate malfeasance.

"Considering the lack of political will on the part of developed countries to effectively comply with commitments and obligations assumed under the United Nations Framework Convention on Climate Change and the Kyoto Protocol, and given the lack of a legal international organization to guard against and sanction climate and environmental crimes that violate the Rights of Mother Earth and humanity, we demand the creation of an International

Climate and Environmental Justice Tribunal that has the legal capacity to prevent, judge and penalize States, industries and people that by commission or omission, contaminate and provoke climate change.

Supporting States can present claims at the International Climate and Environmental Justice Tribunal against developed countries that fail to comply with commitments under the United Nations Framework Convention on Climate Change and the Kyoto Protocol including commitments to reduce greenhouse gases."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

Finally, the Agreement called on all peoples to join in a Global People's Movement for Mother Earth, to propel the world forward to a new form of Governance, based on the principles of complementarity, where diversity is welcomed as necessary for the richness of societal life.

"In order to coordinate our international action and implement the results of this 'Accord of the Peoples,' we call for the building of a Global People's Movement for Mother Earth, which should be based on the principles of complementarity and respect for the diversity of origin and visions among its members, constituting a broad and democratic space for coordination and joint worldwide actions."

(Peoples Agreement on Climate Change and the Rights of Mother Earth)

Absent from the Agreement was any mention of the Pandemic. It was presumed that within the body of the document were all the principles and tools necessary to provide a healthy and happy society. By following its principles and truths, the virus would be conquered.

James deBrum observed, "The peoples of the Earth deserve better. We will not accept a world where wealth and power are concentrated in a small elite, while the rest of humanity suffer a life of poverty, disease, hunger and deplorable living conditions. We will not accept a world where the fortunate few are able to degrade Mother Earth's life support systems and enormous beauty, and disrespect the rights of countless non-human living beings that contribute so much richness to the world."

DeBrum, now back at the podium, his arms outstretched and his hands gripping the outside edges of it, turned his head and looked

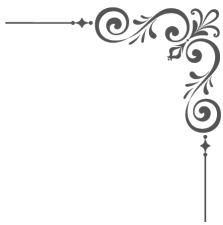
back at the members of the group sitting behind him. Everyone on stage stood up, glanced about at one another, then faced the crowd of reporters.

James deBrum looked back at the reporters and spoke forcefully.

“We demand the immediate acceptance by all the world's countries, of the Peoples Agreement Creating a Just System of World Governance, in its entirety and spirit, and the immediate establishment of a Commission to create the system of laws that conform to the principles and truths contained within that document. We also demand the immediate phaseout of fossil fuel use and transition to a fossil fuel-free system of energy production.

He continued. “The Peoples Global Movement for Mother Earth that is now underway will continue until our demands are met. It will grow in size until it halts all world trade and business, and will shut down the global economy. We call on all the peoples of the world to join in this movement. Together we can force change and create a just world. We can save our children. It will not be easy, and it will not be quick. We are up against powerful forces that are heavily invested in capitalism. We will need everyone, in every walk of life, profession, and social status. We do not need to resort to violence, but we need to show that we refuse to engage in the capitalist way of life any longer. We want a system that is fair to all.”

James deBrum then focused his message on the leaders of the national governments of the world. “We reject violence and hope that the transition can be peaceful, but we will not stand down. The more we are resisted, the more we will grow...overcoming all attempts to quiet us, until all commerce stops and governments fail. We are willing to meet and discuss the transition at any time, but we will accept nothing less than the end of Capitalism and the transition to a fair, just, and sustainable society.”



73

30 June 2029 Saturday
Washington D.C., USA

It was late afternoon. Mark Lochridge sat at his desk, in his office on the third floor of the Hart Senate Building, overlooking Constitution Avenue, his cell phone pressed to his ear. With him in the room were two colleagues, James Ruston, senior Senator from Idaho, and Frank Bartell, newly elected junior Senator from North Dakota.

James Ruston was 67 years old. He had been elected to the Senate in 1984, taking his seat during Ronald Reagan's second term. Although Ruston was a conservative, religious Baptist by denomination - believed in family values, he was fair, non-judgemental and made decisions based on facts and not on ideology. He supported civil rights, had compassion for immigrants, and understood their drive to make a better life for themselves. He made it a point to educate himself on all the issues and possessed an orderly intellectual mind.

Frank Bartell, at 39 years old, was just learning how to navigate the Senate. He was born in Seneca, New York, to parents who were both professionals. His mother, an accountant, leaned Democratic, and his father, an engineer, was a Republican. Frank grew up hearing both sides of every issue. He began his political career after 5 years practising law for a small law firm in Dickinson, North Dakota, by winning a seat, as a Democrat, on the Dickinson City

Commission. From there, he was elected to the North Dakota State House, then to the United States Senate, switching parties and running as a Republican, after failing to win a seat twice as a Democrat. Though he voted mostly the Republican line on budget issues since taking office, he bucked his party on constitutionally important policies and continued to be troubled by the extreme views of the party's far right wing.

Mark Lochridge aligned himself more with the hard-line policies of President David Wainright. Whether he totally agreed with the President's views on all issues was hard to tell, but he rarely criticized decisions coming out of the Oval Office. He certainly had more to lose. He had every intention of holding office until he was ready to retire, and to do that, he needed the President's support and the backing of big money.

Though the three men had markedly different views on a number of issues, like immigration, Constitutional Law, education, and the "Palestine Problem", they got along well socially, played pickleball together regularly, had the same interests in sports, and generally enjoyed each other's company. They often ended the day with a few drinks to decompress.

Lately, decompression was becoming more and more necessary, but increasingly harder to achieve, and on this day, nearly impossible. Outside, on Constitution Avenue, a crowd of about 25,000 demonstrators was noisily protesting the Administration's hard-line stance on the Pandemic and the Climate. Ever since the end of the COP in February, life in the capital was becoming more chaotic. There were sporadic protests at first, people unhappy in general, but angry that the President and Congress seemed to be indifferent to the suffering families were going through. They were feeling betrayed.

There was a palpable feeling of desperation in the country as policy after policy slowly chipped away at the freedoms the people enjoyed just five years ago. The Administration was painting the Pandemic as a hoax, blaming the deaths on a secret program perpetrated by left leaning opposition parties worldwide. Current policies were openly and unapologetically favoring the rich now, cutting social welfare, health, and economic programs to benefit wealthy domestic and foreign cronies. The chaotic use of tariffs and trade wars was exacerbating already poor economic conditions.

Especially troubling was the not so subtle program, begun after

Donald Trump assumed the Presidency in 2024, and continued by Wainright in 2028, to undermine the rights of women, to reverse a hundred years of suffrage and struggle for independence and equality, just to appease a sect of Evangelical Christians who believed in the 'literal Bible', advocating the subservience of the female under the rule of the male. Open support for such an ideology by the Administration was leading to increasing domestic violence.

President Wainright had also continued the disengagement of the United States from the Climate Talks, rejecting the notion that Climate Change was real or that humans had anything to do with it. It was the left, not the Climate, he said, that was threatening the production of the antiviral in the forests of northern Canada.

In addition, the far right, near autocratic government of the U.S. had, beginning in the early 2020's, under Trump, begun to alienate every democratic government in the world, making it difficult for progress on any issue, much less the existential threat the world now faced. And, to top it off, the U.S. had no concrete plan of its own to conquer the the Virus.

Legal battles were taking place in every jurisdiction in the country, but seemed to be going nowhere, sparking greater frustration and anger. The demonstration on Constitution Avenue was only one of many taking place throughout Washington, D.C. Crowds had gathered at the Capitol, the White House, on the steps of the Supreme Court, the Lincoln Memorial, the Pentagon and the Washington Memorial. The Capitol Police estimated the size of the crowds across the city at more than three million strong. People were marching on every street, interfering with traffic, carrying placards and signs demanding action. Speaker after speaker on makeshift stages, on the beds of trucks and the tops of cars, demanded change. Reminiscent of the Vietnam War era, bands played, and singers sang words of protest, calls for a better world, one of unity, cooperation, and fairness, one of love and hope.

Demonstrations very similar to those in Washington, D.C. were taking place in hundreds of cities across the country, in every state capitol, outside of corporate headquarters and on the grounds of colleges and universities.

Remarkably, aside from a few isolated acts, the demonstrators were non-violent. But their message was clear. They would not stop, and their numbers would grow, bringing to a halt the entire U.S.

economy, if need be, until the government joined with all the nations of the world to bring about a more fair world and the end of the Pandemic.

Mark Lochridge, at his desk, thanked the party on the other end of the phone call. “I understand your position. Yes, yes, you know you have my support. Always. I’ll do what I can. And thank you for intervening. I appreciate it. Yes, sir, I’ll talk to you soon. Thank you again. Goodbye.”

“Who was that?” Bartell asked.

“Bornestein,” Lochridge replied. “Just calling to make sure of my support on the tax vote next week. Anyone want a drink?”

“Sure,” Bartell said.

“I could use one,” Ruston added, staring out the window. “How many people do you think are out there?”

“I don’t know. Twenty thousand?” Lochridge seemed unimpressed as he poured three glasses of Jack Daniel's Gentleman Jack. He handed one to Bartell and walked over to Ruston, who was still watching the protest, and handed him one. Lochridge glanced out the window quickly, then walked back to his desk, sat down, and put his feet up on his desk. “Don’t they have anything better to do?” He said, almost casually.

“Aren’t you concerned, Mark?” Ruston asked, still looking at the angry crowd below. “This is happening all over the country. Truckers are going on strike. Dockworkers are calling in sick. Airlines are canceling flights. We’re beginning to run low on clothing, and food supplies are down. Shelves are emptying everywhere, and people are beginning to hoard supplies. Just like they did during Covid. Helen had to go to five different stores before she found any bacon, and she still hasn’t found the Ghirardelli chocolates I like.

“I think you can forget about the Ghirardelli chocolates, Jim. Cocoa groves are disappearing. The Democrats say it’s due to Climate Change, but who knows? You'd better find a good substitute.” Bartell nursed his Gentleman Jack.

Ruston ignored Bartell’s remark and continued. “Yesterday I got a call from an official in the Belgian Federal Economy Industry. She said they were running low on oil coming from Kazakhstan. Something about problems offloading in Rotterdam. Not enough personnel, and strikes at the oil terminals. Oil flow from Rotterdam to Antwerp is half what it was a month ago. She was worried they

were going to run out. And Russian gas to the EU is way down due to strikes. Belgium is trying to make up the shortfall to Germany, but…"

"Will you guys stop with the apocalypse shit,' Lochridge cut Ruston off. "You're beginning to depress me." He finished the last of the Jack Daniels in his glass, pulled his feet off his desk, and stood up. "This is going to pass. Once all these people are tired of pissin' and moanin' how bad things are and they run out of food, they'll all go back to work. Look, Putin is cracking heads. So is Kim Jong Un… and Xi Jinping. Putin is threatening the labor force with imprisonment if they don't go back. The Saudis are already arresting people - anyone interfering with the free flow of oil. They aren't taking any shit. There's something to be said for a strong Executive."

"You're not being serious, are you, Mark?" Ruston was astonished.

"Nooo…" Lochridge admitted, as he poured himself another drink. "But I think it's time Wainright considered stronger action."

"It's not going to make any difference what Putin does at home if there's no one to offload goods or pump oil out of his tankers. Same goes for the Saudis." Bartell observed. "There are bottlenecks at just about every major port. Production is down in Malaysia, India, and Indonesia. Indonesia was pumping 600,000 barrels a day a year ago. They're down to 250 now. World production is…"

"Down to half, I know, I know." Lochridge was annoyed. "Vietnam, Borneo, and Brunei aren't even pumping now. I know, I read the report too, Frank, but believe me, this is not going to last, especially in this country. Americans are too soft, so are the Canadians… and the EU, for that matter. They'll protest for a while, but they'll go back to work."

"What do you think, Jim?" Bartell asked. "You think this'll peter out?"

"I'm not so sure, Frank, not this time," Ruston said. Then he looked at Lochridge. "A lot of people up on the Hill are nervous. They remember January 6. They were scared shitless that day. A lot of them thought they might die. They're scared now. Everyone is starting to feel it. And now they'll be coming after us. There are quite a few in both Houses who are staying home. Town Halls are getting too dangerous, too confrontational.

"This has been building for a long time, Mark. I know you know

that." Ruston continued. "This started long before..."

They heard a siren wailing outside. Then another. Bartell pulled the curtain aside on a window facing Constitution Avenue. Daylight was fading into evening, and details of the crowd were hard to see. "A Fire Rescue truck just pulled up. The lights are flashing. There's an Ambu... Holy shit!"

Bartell was stunned by what he saw. The crowd, visible now as a large dark mass, for an instant, fell silent, then parted, revealing a figure, possibly a man, apparently sitting in the middle of the street, enveloped in flames. He had doused himself with gasoline and set himself on fire. He was silent as the flames burned through his clothing and scorched his body. The crowd erupted just as quickly into screams of panic and horror as the fire rescue team showered him with fire retardant, extinguishing the flames. What was left was a grizzly, blackened and charred form, cloaked in white foam. The last of the gray smoke from the fire drifted up from the body and disappeared overhead.

Lochridge and Ruston had watched the spectacle from another window. All three men turned away and stood in silence for a moment. Lochridge went to his liquor cabinet and refilled the glasses, handed them out, and then walked back to his desk with his and sat back down in his chair. Ruston and Bartell slumped back on each end of the couch. All three sipped their drinks in silence for a few minutes, reflecting on what they had just witnessed.

"Holy shit!" Bartell repeated, as he continued to stare off into space. "Did you see that? Just set himself on fire! Holy shit!" He then swallowed the half-filled glass of liquor and set the glass down on the coffee table.

"We have got to find a way back from this. Find a way back to common ground, to work together and think about the people we're here to represent." Ruston suddenly felt a clarity of thought he hadn't felt in a long time. The images of the past few minutes were seared into his brain. "A lot of congressmen... and women, are afraid this is getting out of hand. They're afraid to leave their kids in school."

"I don't think that's going to be a problem. The private schools we send our kids to are well-protected. No one is going to break into schools like Trinity and shoot up the place. I think some of us are getting too paranoid."

"I think that's part of the problem, too, Mark." We're sending

our kids to private schools, schools the average person in this country can't even afford... and even if they could, we make sure they don't get the same freedom of choice we do. We have better healthcare than the people out there in the street, and we keep trying to take theirs away. And what about our pensions?"

"Goddamn, Jim... "

"And I think it's us who are endangered, not our kids," chimed in Bartell. "Look at that Kentucky state senator who was shot last week, leaving his house. His wife and kids watched as some crazy walked up to him, yelled something about "blood-sucking murderer," and shot him in the face. If he hadn't moved, he'd be dead now. That drug company CFO in Austin last month wasn't so lucky. Nobody is doing Town Halls anymore. Too dangerous. And the hate mail is... "

"I think you guys need another drink. You're letting this shit get to you," Lochridge joked.

"That didn't bother you?" Ruston asked, pointing to the window.

"C'mon, Jim. Yes, it bothered me. But that person made a choice, a really bad choice. We didn't force him to do that."

"But we aren't helping him either. We're scared shitless of Wainright and what he might do if we disagree with him. We're so spineless that we'll kiss his ass while he's shitting on us, so afraid he'll keep us from being re-elected that we're willing to rubber-stamp anything he wants. We kept that man's wages down, made it harder for him to get health insurance, deregulated everything so his CEO could make more money, but poisoned the air he breathes and the water he drinks. To make him feel better, we tell his wife it's her job to stay home and have babies, and tell him what a great guy he is, so his self-image doesn't take a hit. What that was out there," Ruston said, "was an act of desperation."

"Shit, Jim, "you're depressing me." Lochridge got up from his chair and walked over to Ruston and sat down in a chair in front of him. He leaned forward toward Ruston. "You're not endorsing that crazy shit deBrum is proposing, are you? Socialism? Mother Earth shit? Everybody's equal?"

"I'm not endorsing anything... yet," Ruston replied. "But, its evident, the current economic system is broken."

"What... Capitalism?" Lochridge was surprised to hear his friend, a lifelong Conservative, criticize a system he had defended and supported his whole career. Lochridge launched into a monologue

about Capitalism, how it was the greatest economic system ever invented by man, that it was responsible for lifting humanity out of darkness, that it had created a revolution in innovation. Capitalism had doubled life expectancy, lowered infant mortality, and conquered a long list of diseases that once decimated human populations. It electrified homes, gave us running water, sanitation, cars, trains, planes, computers, telephones, and satellites. The dreamers of this world risked their own money to make a product or provide a service that would make life easier for millions of people. They paid for all the raw materials, the equipment and machinery, bought or built the factories to make the products, hired the people, and paid them good wages to build those products or provide those services. Their reward for risking their money was the profits they made. Competition and the drive for profits sped up progress in a way no other system could.

"Capitalism pulled the human race up out of the dirt and raised the standard of living for everyone on this planet. We'd still be running around in loincloths and chucking spears if it weren't for Capitalism." Lochridge said. "It gave you that house in the Hamptons, Jim, and your cottage on St. Johns, Frank. Everyone got richer."

"Not everyone, Mark," Ruston replied.

"Alright, not everyone," Lochridge agreed. "It would be naive to believe everyone would, but everyone had the same chance. There were winners and losers. There always will be. Not everyone can be a winner. Those who don't win wind up working for those who do. Survival of the fittest. But, in the end, most of the world is better off today because of Capitalism."

"You're right," Ruston said, "it's just that too many people are being left behind, now. And we're partly to blame, the Republicans, I mean. We've gotten too cozy with big corporations."

"Both parties are to blame, Jim, both Parties," Lochridge said.

"I agree with Mark on that one, Jim," Bartell added. "The Democrats are in bed with big business, too. They're no angels. They're taking contributions from oil companies, coal mining, tech companies - hell, Democrats get a hell of a lot more contributions from internet companies than the GOP does. And they've taken just as much advantage of Super-PACs as we do."

"But they aren't trying to suppress votes to stay in power. What's happened to the Republican Party over the past thirty years? It's not

the Party my parents voted for anymore. We used to believe in civil rights, voting, Abraham Lincoln. We were the party that freed the slaves, for God's sake. We were responsible for the 13th, 14th, and 15th Amendments. We made that happen. Now look at us - we're trying to take the vote away from blacks and women, we're deporting people for criticizing the government, we're muzzling news outlets, telling universities what and who to teach, and curtailing free speech. This is not who we are."

Lochridge looked at Ruston in disbelief. Was this really one of their colleagues? They knew Jim Ruston was an old-school Republican, a moderate, but he seemed to be moving much further left every day.

Ruston continued. "This party used to support environmental protections, the National Parks, and climate legislation. Bush 1 recognized climate change as the gravest threat we've ever faced. We don't even acknowledge it exists now. We believed in the conservation of the environment. Nixon signed the Clean Air and Water Act... with bipartisan support. We, the same Republican Party, have dismantled every environmental protection we could in the name of progress. We are now willing to put people's lives in danger for money. Be real. The Republican party has lost its way, lost everything it used to stand for."

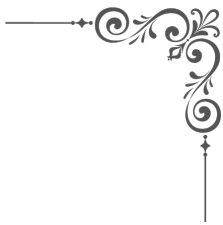
"What are you proposing, Jim, that we throw out Capitalism and embrace Socialism? Do you really think Socialism is the answer? Embrace Nature and all God's creatures? Give up all we've worked for and spread it out among the masses, to people who haven't worked a day in their lives, who think the government owes them a living? No government is going to do that. "

"I'm not proposing anything in particular. But this system is not working anymore. All you need to do is look out the window to see that. People are fed up... with both parties. They're fed up switching back and forth every four years and not getting anywhere. They want change, real, *permanent* change. That's why they voted for Trump in '16 and '24, and Wainright in '28, but all they've done is made things worse. You know that, Mark. There's nothing wrong with wanting more, with having more, but Trump and Wainright have carried corruption and greed to new heights. They've carried it too far and too openly. And we're too afraid to say anything anymore. Tell me I'm wrong, Mark."

Ruston didn't wait for a reply.

“Now deBrum says he’s offering the same thing - do away with corruption, and people are going to back him, just like they did Wainright. I’m not saying he’s right. I’m not saying Eco-Socialism is the answer, I don’t even know if he’ll deliver, but people sure in hell don’t believe us any more and they’re gonna back him. Capitalism - this brand of capitalism - is over. If we’re smart, and we want to stay in power, we need to take those people out there seriously… Or those people are going to take everything back. Wainright is wrong thinking he can strong-arm his way out of this. If he tries, this will be Russia, 1917, all over again.”

“I think you’re exaggerating the danger, Jim.” Lochridge said with a slight smile. “But even if you’re right, and this does descend into a shit-show, I’ve got an escape plan, a Plan B. Don’t you?”

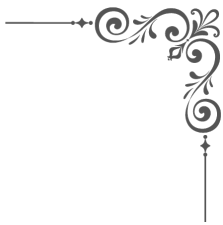


74

5 July 2029 Thursday
Arlington, Virginia USA

On a beautiful summer morning, at 9:53 am, a seventeen year old boy walked through the entrance door of a prestigious boarding school outside of Arlington, Virginia, and, with an semi-automatic rifle he had taken from his father's safe, shot and killed thirteen students and four teachers, wounding six students and three teachers, before he turned the weapon on himself, ending his own life. The school was open because the school district was experimenting with year round classes.

Many of the students killed that day were the children of some of the nation's wealthiest individuals - private citizens, legislators, federal judges, and lobbyists. The boy, himself, had attended the same school until two days before, when his English Studies teacher gave him a failing grade for plagiarizing an essay. He killed his teacher first.



75

3 July 2029 Tuesday
Port Headland, Australia

The Port of Port Hedland, on Australia's northern coast, is the largest bulk export port in the world, and Australia's second largest port, handling five hundred seventy three million tons of goods annually, mostly iron ore. Both the port and the town of Port Hedland are built on a tidal flat, connected to the mainland by a heavily trafficked causeway. The town and port are separated from residential South Hedland, where much of the 16,000 residents live, by low-lying tidal flats and mangroves. Much of the land the port sits on is sand dredged from the harbor and navigation channel.

The town of Port Hedland is named after Captain Peter Hedland, a Swedish-born mariner who explored much of Australia's northern coast in the late nineteenth century. Indigenous peoples had already been living in the area continuously for 65,000 years when Hedland explored the harbor. The Native People originated from the earliest migrations of humans out of Africa 70,000 years ago, making them most likely the oldest human population outside of the African continent.

The First Peoples of Australia are descendants of two groups: the Torres Strait Islanders, who originally settled the Torres Strait Islands between Australia and Papua New Guinea, and the Aboriginal People, who settled the mainland. They are a culturally diverse People, with more than 250 distinct languages. When the

British began settlement of the continent, there were roughly 750,000 to 1.2 million First Peoples living there. Introduced diseases and genocide reduced their population to 90,000 to 120,000 within 140 years of British settlement.

Beginning with settler colonization around 1788, until as recently as 1940, Aboriginal and Torres Strait Islander children were forcibly removed from their parents by Government authorities, and fostered or adopted out to non Native families to be Christianized, "civilized," and educated in isolated missions. The kidnapping was part of a program that provided free labor to colonists in their campaign to resettle and displace Native Peoples from their lands. No treaty was ever created. In 2008, then Prime Minister Kevin Rudd formally acknowledged the injustice and apologized to the Country's Native Population on behalf of the Australian Government. But, in a 2023 National referendum, sixty percent of the voting population rejected a proposal to recognize the First Peoples of Australia in the Constitution and include Native representation in Parliament. The continent's original inhabitants continue to struggle to this day, as do Native Peoples everywhere, for recognition, restitution, and survival of their culture.

Most of the state of Western Australia, where Port Hedland is located, is arid outback. The northern coast is semi-tropical, and the southwestern coast, where Perth is located, has a Mediterranean climate. Just two major thoroughfares traverse the state, one coastal and the other inland. The North West Coastal Highway runs around the western and northern coast of Australia, from Perth to Port Hedland, and then to Kununurra, near the western border of the Northern Territory, where it becomes the Victoria Highway. The Victoria Highway continues eastward to the Stuart Highway at Katherine, just south of Darwin. From there, a network of highways connects to the more populated cities on the eastern side of Australia.

The Inland roadway, the Great Northern Highway, runs almost due north through Western Australia from Perth to Port Hedland. In Western Australia, all roads lead to Port Hedland.

The scene on this day in Port Hedland was extraordinary. The town's population had swelled to more than three million in the past three weeks, as people from all over Australia converged to protest the country's continued reliance on fossil fuels. After COP33 the previous February, and in the months leading up to this massive

display, protests in Port Hedland had been infrequent and unfocused, the town's remoteness working against it.

James deBrum and Russel Penkay were well aware of the importance of the port to Australia - and to the world. Australia was the world's largest iron ore exporter, twice as much as Brazil, and twelve times as much as Canada - and most of it was shipped out of Port Hedland. Interfering with shipments leaving Port Hedland would have a huge impact on steel production worldwide. So, James deBrum was thrilled to hear from Russel Penkay that he had a "man on the ground" in Australia who could handle a protest large enough to shut down the port.

James encouraged Russel to contact Gary Sanders and, between the two of them, plan a countrywide work shutdown and protest centered on Port Hedland, but including other ports like Newcastle, which handled coal; Melbourne, a major container port; Sydney, an import-export gateway to Asia-Pacific; and Fremantle, a key hub for shipments to and from Asia, Europe, and the Americas. Gary, through his work at the Australian CDC, and Russel, through his contacts at the AFN and other global Indigenous and environmental networks, knew quite a few people willing help organize the mass protests at not only these ports, but at government offices, corporate headquarters, universities, and other strategic sites throughout Australia.

People had come in cars, trucks, buses, and every other conceivable form of transportation from every part of the country, filling every available dry spot of ground. They parked along highways and highway shoulders, in fields and parking lots, in front of businesses, and on every back road and driveway, until it was impossible for vehicles to pass in or out of the town.

They had come in boats of all kinds, shapes, and sizes, filling the harbor until people joked, you could walk from a mile outside the harbor to the docks without getting your feet wet. They anchored outside the harbor, in the marinas, and along the beaches so thick they shut down commercial shipping. Business of any kind came to a complete stop. Counter-protesters were also there at first, but their numbers were so inconsequential that they left after the first day.

Authorities were angered by the protest and considered shutting it down by force, but, because of its size and the fact that it was largely non-violent, were reluctant to do so, fearing it would trigger

a catastrophe. They were also keenly aware that many in the military and the police not only sympathized with the protesters but, suffering the same injustices, identified with them. It would take very little more injustice for them to break ranks and join the protest.

Gary stood at the railing outside his room on the third floor of the Esplanade Hotel, looking out toward the harbor and the Port Facilities, satisfied with what he saw. They had shut down the harbor completely. No cargo was moving in or out, and he knew that if the protest held, none would move in the foreseeable future. He and Russel, and an army of other organizers, a great many of them First Nations People, the Kariyarra, Ngarla, and Nyamal, spent weeks working out the logistics of the countrywide protest - discreetly spreading the word, working out services, transportation, food, water, first aid, and supplies to support the operation. With Gary were three other organizers, two men and a woman, all Native born locals.

"We did it, boss," one of them said, evidently thrilled with the turnout.

"We did it," Gary agreed. "You guys did it. You made this happen. I couldn't have done it without you."

"It was a team effort," a second man said.

"You still leaving today?" The woman asked.

"Yeah," Gary replied. "I fly out in a couple of hours. I've done all I can here for right now, and you have this under control. I've got to be in Melbourne tonight, stay there for a couple of days, then on to Sydney and Canberra. I'll be back at the end of the month, if all goes well."

"Don't worry, we'll take care of everything here," the woman said.

"I know you will. You've done a great job." Gary looked back out over the massive crowd spread out as far as he could see. "They're focused, inspired, motivated. They're determined."

"And they are peaceful..."

"As peaceful as two million people can be." The woman added.

"You all know the stakes here," Gary said, "and you know violence is not going to play well. Non-violent civil disobedience is really important, guys."

"We've got plenty of people out there watching out for troublemakers, Gary, and we'll stop it before it even starts.

“And we want the police to know that. We want police on our side, calm, even sympathetic. Make sure you keep them in the loop. They have sick kids, too. They’ve lost kids. They’re struggling, just like we are. We want them to know we’re doing this for them, too. Talk to them about their lives, their families, their problems. ”

“We will.”

“We have to keep reminding all those people out there of the goal… and how important it is that they stay focused… and non-violent.”

“You don’t have to worry, Gary, we’ve got this.”

But Gary did worry. He worried that two million things could go wrong at any second, but they had done all they could, and they would have leave the rest up to fate. Gary discussed last-minute concerns with his crew and then headed out. It would take him some time to make his way through the crowds and get to the airport.

76

8 July 2029 Sunday
Agadez, Niger

Sara stood by the side of the road, RN25, the main highway going into Agadez, Niger, watching the refugees as they passed by her, heading north to points on the Mediterranean coast, where they hoped a better life awaited them. Many were on foot, solitary, or in small groups that included only older children. They were covered with dust, bedraggled, exhausted, and defeated, and spoke very little. Some made eye contact with Sara, but most stared blankly ahead or down at the ground. Others, the lucky ones, the ones that had some money, rode in cars, or sat packed into pick-ups or flat-bed trucks, their entire life's belongings wrapped up in a blanket and tucked under their legs.

Her heart ached as she watched.

It was 7:30 in the morning, and the temperature was already 93 degrees. It would probably reach 103 by early afternoon. The humidity was low, so the heat was at least bearable. Dry, parched, dusty soil coming from the trucks entering the highway was being lifted into the air by a gentle breeze, creating a heavy haze, obscuring the view into the town.

Outside of town, the land was flat, sandy, yellow-orange in color, and nearly devoid of plant life. To the north was the vast Sahara Desert, stretching 1,100 miles to cities on the Mediterranean Sea, cities where these refugees hoped to find sea

passage to Europe.

The trip north for them would be perilous - but no less so than it had already been, or less than it had been where they had come from. Most were fleeing intolerable conditions in their homelands - violence and death, civil wars, starvation, sexual abuse, kidnapping, climate catastrophes, deteriorating economic conditions, with no prospect of work. Many had no idea they would find these same conditions ahead as well, on their journey north, with the added peril of drowning on a forty hour sea crossing to Italy, in overcrowded, unsafe dinghies and ramshackle boats with no food or water. Many thousands died every year making the sea crossing.

There are three primary Mediterranean Migration Routes taken by refugees coming from the global south to Europe. The Central Mediterranean Route is the most dangerous and heavily traveled of the three. Migrants and refugees originating in sub-Saharan Africa, the Middle East, and Eastern Africa travel overland routes to departure points in Libya and Tunisia.

Refugees from Middle Eastern countries, Syria, Iraq, and Afghanistan, for instance, and from South Asia, travel the Eastern Mediterranean Route through Turkey to the Aegean Sea, where they cross to Greece, and then to the rest of Europe.

Refugees using the Western Mediterranean Migration Route travel from points in North Africa, principally Morocco and Algeria, to Spain and the Canary Islands.

All three Mediterranean crossings have their dangers and hardships - exploitation by smugglers, difficult border crossings, crowded detention centers, pushback from European countries - but the most treacherous is the Central Mediterranean Migrant Route. After months of exhausting travel, often on foot, evading militias, suffering myriad forms of exploitation, refugees are forced to wait in filthy, unhealthy detention centers at departure points in Libya and Tunisia. From there, smugglers with AK-47s herd refugees down to the beaches at night and, instead of the container ships or trawlers they were promised, they are packed onto small, unsafe wooden boats and dinghies, without the cell phone and life jackets they were assured, where they are left to find their own way across the Mediterranean, to Italy, forty hours distant.

The price for freedom? Anywhere from a few hundred to a few thousand dollars. Seasickness, exhaustion, heat, cramped quarters, and lack of food and water take their toll. Thousands die every year

making their way from points in Africa to Europe. The International Organization for Migration has been keeping track of deaths on these enormously perilous journeys, and estimates that, from 2014 to 2024, 31,700 migrants lost their lives on Mediterranean crossings. In the years since, data on sea-related deaths have been hard to come by, but the average annual death toll is thought to be between 2,500 and 4,000. These figures don't include overland deaths, because they are much harder to document due to the clandestine and variable nature of the routes, and lack of eyewitness reports. That being said, the UNHCR, the United Nations High Commissioner of Refugees, suggests that the number of overland deaths, especially through the Sahara Desert, may be twice the number lost on the sea crossing.

Crossing the Mediterranean to Europe is only one of a number of major refugee migration routes from the global South to Developed Countries in the North. Many refugees who arrive in Greece via the Eastern Mediterranean Route continue on to countries in Western and Northern Europe using the Western Balkan Route through Serbia, Hungary, and Croatia.

People fleeing conflict in Somalia, Ethiopia, and Eritrea, in the Horn of Africa, or seeking better employment opportunities, use the Arabian Peninsula Route, crossing the Red Sea or Gulf of Aden to Yemen, and then on to Saudi Arabia and other Gulf States.

The major migration route for refugees from the Global South in the Americas originates in cities in South and Central America, the Caribbean, and ends in the United States and Canada.

Refugees coming from South America and some from the Caribbean find themselves eventually having to cross the Darien Gap on the border between Colombia and Panama. The Darien Gap is a sixty-mile-long gap in the Pan American Highway, a 19,000-mile roadway connecting Alaska with the southern tip of Argentina. The Gap is heavily forested, with rugged mountains, raging rivers, and dangerous animals, making it too expensive to construct the necessary infrastructure to connect the northern and southern legs of the Highway. Migrants and refugees seeking asylum in the United States or Canada are forced to traverse the gap on foot, a 7 to 15-day ordeal, testing the very limits of their endurance, and experiencing nightmarish conditions all the way. Migrants are prey to smugglers, drug cartels, and human traffickers, enduring physical and sexual abuse and exploitation, while suffering enormously from

heat exhaustion, sleep deprivation, lack of food and water, and diseases.

After a break opened up in the line of trucks ferrying refugees out of Agadez, Sara and Dan got back in their rented jeep and drove the main highway back toward the city. Highway RN25 comes in from points on the North African coast, enters the northwest part of the city, and turns south, passing directly through the city center. It then turns west and exits the southwest corner.

Fine Saharan dust swirled about their jeep as they exited the highway onto the dirt road leading to the Humanitarian Center, making visibility difficult for a moment. After navigating the traffic, Dan brought the jeep to a stop at the entrance to the Center. The settling dust revealed a sprawling, desolate, flat, melancholy sight, without a shred of shade to be seen. Shanties, tents, and small, windowless mortar structures stood out in stark contrast to the orange soil. Men, women, and older children, in dirty, meagre clothing, sat against the buildings or in the doorways, looking outward, shielding their eyes from the oppressive sun.

"And they call this a Humanitarian Center?" Dan said as he and Sara took in the scene. "Looks more like a humanitarian crisis."

"It's depressing," Sara said. "What the hell is the ma..." She caught herself and stopped. She was getting tired of asking that question. It was a rhetorical question anyway, requiring no answer.

Before they could get out of the jeep, a small group of about fifteen men, women, and children approached them. The adults lined up in a long single row in front of them, standing, and the children sat down at their feet. Their clothing was old, threadbare, and torn, their sandals worn thin from countless days and nights on the road. Most of the children were barefoot. They cradled hand-printed signs that read: "302 days. We don't want to stay." "Our past is sad, our present is bad, and our future is unknown, so we don't want to stay here!!!"

Dan started filming.

Sara took eight or ten shots with her camera, then let it hang at her side. Her heart sank as she looked at the group in front of her, their faces devoid of expression, their eyes blank. A deep sorrow crept over, and she felt their desperation. She asked if anyone in the group could speak English. Many nodded. She asked how long they had been there. One young man spoke up. He pointed to each as he said, "six months, five years, three years, seven years..." Sara's heart

sank even more.

“Why so long?” She asked.

“Too many refugees and too few re-settlement places,” he answered. “There are only two hundred resettlement camps in Niger for more than twenty thousand refugees. They want us to fit in with the local community, but we cannot because of our isolation here so far out of the city.”

“What about asylum? Aren’t they applying for asylum?”

“Many are, but the process is so slow that many have been waiting for years,” The young man replied. “And more and more are being denied entry into Algeria and Tunisia, so they are sent back to Niger. Algerian police drop them off at the border and leave them there, telling them not to come back, to go back to where they came from. But they cannot go back. They have no place to go back to. They have lost their homes, their families. They have been tortured and robbed. The women have been raped. They cannot go back.”

Dan continued to record the exchange.

“Many protest the conditions here - the lack of food and insufficient water, the lack of medical treatments for the ill and hurt. But those who speak out the loudest are met with beatings, arrests, and imprisonment.”

Many critics have referred to the Humanitarian Centers as ‘detention centers’ or ‘open-air prisons.’ The camp at Agadez is typical of many in central and northern Africa. It is located on the outskirts of the city, far from the scrutiny of human rights organizations. Refugees live under harsh, overcrowded, and unsanitary conditions - sometimes for five to seven years, lacking the most basic medical services. Health clinics are poorly staffed and open only a few hours a day. Food is meagre and erratic, unsafe and often contaminated with sand. Diarrhea and intestinal disorders are common. Outside temperatures often exceed 118F.

Despite there being a significant population of children, there is no educational program for them. Security is nearly nonexistent, and abuse by guards is common, especially for women and those who complain. Arrests are often groundless and used to intimidate and to silence protesters. The United Nations High Commissioner for Refugees (UNHCR), whose mandate is to represent and protect the rights of refugees, has instead been accused of withholding medical care and food to punish them.

The young man pointed to a woman and child near the end of the line. “You see the woman, there? With her daughter? Her husband was arrested two days ago for protesting. He was hit and kicked and put in a truck and taken away.”

Sara walked down to the woman, followed by the young man. Sara nodded to the woman and introduced herself. “Your husband was arrested for protesting? Immediately, she realized that the woman might not have understood her. “Uh, I’m sorry, does she speak...”

But the woman answered in perfectly good English. “Yes, my husband, Ismail, was arrested two days ago. The security guards hit him and knocked him to the ground. Then they picked him up, threw him in their truck, and took him to the Police Station.”

“Ismail has been a thorn in the side of the Police,” the young man added.

“Why?” Sara asked

“Because he has been protesting the conditions here,” the woman said. “He has been writing letters to the UNHCR and criticizing them for not doing enough for the people here.”

“Ismail has been speaking to the newspapers, and the guards warned him to stop, or they would arrest him,” the young man added. “But he continued. He wanted the world to know what conditions were like here. That we are not getting enough food and water, or medical treatment, or medicines. He wants the world to know - and to do something.”

The woman continued, “My husband has trouble with his eyesight. Because of the dust, his eyesight is getting worse. And our daughter has severe asthma. She has frequent episodes where she has trouble breathing. She almost died once. And my husband has pleaded with the authorities for medicine for her, but the doctors don’t come. They don’t look at her. My husband has been protesting for 235 days.”

“Ismail has been fighting for all of us,” the young man added.

“I’m sorry,” Sara said. “What is your name, and your daughter's?”

“My daughter’s name is Amina. And I am Aisha.”

“And how long have you and your husband and your daughter been here, at the Center?”

“We have been here three years. Three years,” Aisha said.

“Have you gone to the police station to check on your

husband?" Sara asked.

"Yes," Aisha replied, clearly worried.

"A group of us went to the Police Station yesterday, when Ismail did not come back," the young man explained. " They would not let us enter and told us just that he was causing trouble. We were treated badly, and they threatened to arrest us, too."

Dan was filming everything.

"We will go to the Police Station and see what we can find out," Sara said. "I promise we will come back as soon as we know anything."

At the Police Station, Sara and Dan found out little more than Aisha had. Ismail had been arrested for attempting to incite unrest, the authorities said. He was currently in a cell at the Station and was not allowed visitors at the present time. They learned he had been on a watch list of activists and troublemakers. Sara demanded to know what Ismail was being charged with, but she was told that no specific charges had been filed as yet and that he was due to appear in court the following morning. She demanded that they be able see him, to make sure that he was okay, and that, if they were refused, she would contact the government officials in Naimey. That apparently was something the local officials preferred to avoid, and they acquiesced. One of the officers led Sara and Dan back to the cell where they were holding Ismail.

The cell where they found Ismail was cramped, with little room to move around in. He was lying on the floor, on a thin, ragged mat. No toilet or drinking water could be seen. Ismail looked up as Sara and Dan approached. He sat up slowly, grimacing as he did so.

"Ismail?" Sara asked.

"Yes, I am Ismail," he replied. "Who are you?"

"My name is Sara Campbell. This is Dan Burns. We are from NBC News. We were talking to your wife at the Humanitarian Center. She said you were here, that you were arrested for protesting. She tried to see you, but the guards wouldn't let her in, so we told her that we would try to see how you were doing. Have you been treated okay?" Sara could see that he hadn't, that he had been beaten. His left eye was swollen nearly shut, and he had a cut and bruises on his face. Dried blood clotted his hair and stained his shirt.

"Yes, I am okay. Please tell my wife not to worry," Ismail pleaded. "I will be seeing the judge tomorrow morning."

“Is there anything we can do for you? Do you need anything?” Sara asked. “I am going to call the office of the National Eligibility Commission and find out why you have been arrested - and why your request for asylum hasn’t been processed. It is not illegal to protest - not even in Niger.”

“Thank you, Miss Sara. Thank you. We have been here for three years. We have filled out all the forms, and still no one will tell us why we are not being resettled. All the people in this camp have been here too long. We have written letters.”

“We will see what can be done to get the charges dropped and get you out. Don’t lose hope, Ismail.”

Sara and Dan left the Police Headquarters and got back into their jeep. Dan drove to the UNHCR field office a few blocks away while Sara called the Commission Nationale d’Eligibilite in Niamey, Niger’s capital. After introducing herself and mentioning she worked for NBC News, she described the incident at the Humanitarian Center and asked to be connected to someone familiar with the case. Sara was asked to hold.

“Hello, this is the Commission Director. Ms. Campbell, how may I be of help?”

Sara was momentarily taken aback, but pleased. She hadn’t expected the Director to answer. She explained the situation again and asked why Ismail had been arrested for peacefully protesting what were clearly inhumane conditions. “Can you explain to me why it is taking so long to process his asylum request, and those of other long-term residents.

“Ah, yes, Ms. Campbell. I have his file before me now. Mr. El-Shaamari has indeed been arrested, but he was not arrested for protesting. That would be illegal. He was arrested for attempting to incite a riot. That is certainly not peaceful, and it is definitely illegal.”

Sara shot back. “He was not attempting to incite a riot. That is absurd. He was...”

“Ms. Campbell,” the Director interrupted. “Mr. El-Shaamari will appear in court tomorrow. There are witnesses who will attest to his acts of violence.”

“You know that’s not true.” Sara was angry. “The people at the Detention Center have all said he was protesting peacefully. This is just an act of intimidation - an attempt to silence protests, to keep these people from organizing, from speaking out against the poor

conditions, the lack of food, the abuse, the…"

The Director cut Sara short again. "He will have his chance to prove his innocence tomorrow. I'm sorry, I cannot help you further." The Director hung up.

Sara was furious. "That's bullshit! He's not going to get a fair hearing. They're going to make an example of him - just to scare everybody else."

Dan pulled the jeep up in front of the UNHCR office. He shut the engine off and turned to Sara.

"Why are you so worked up over this particular case?" Dan asked. "Why this one?"

"It's not just this case, Dan. It's the whole freaking situation. I've just had it. I'm sick and tired of it. You see this kind of injustice going on every day, all over the world. How much have we seen on this trip to Africa over the past week? It just never ends. And no one does anything about it. No one says, 'Enough is enough.' I can see why Gary got involved in the demonstrations. At least he feels like he's doing something, trying to make a difference, not just accepting this."

"Well, maybe we can get some help here."

The UNHCR proved to be no more helpful than the National Eligibility Commission. The UN representative explained that it was a State matter and, as such, the UN could not interfere. The CNE was the authority. Sara railed again at the injustice that the UNHCR was there to help refugees, to defend their rights, but instead chose to ignore those responsibilities in favor of maintaining good relations.

When they got back into the jeep, Sara told Dan to go back to the police station. He asked why, thinking there was little more they could do there, but Sara just told him to drive. Once there, Sara told Dan to wait in the jeep. She'd be right out.

"What are you going to do?" Dan asked.

"I'm going to try one more thing. Just wait here, I'll be right out."

Sara was in the office for about ten minutes, then came back out. When she got back in the jeep, Dan looked at her. She looked straight ahead.

"Well?" He asked.

"We need to fill up the gas tank."

77

Just after 1 am Sara and Dan left the hotel where they were staying, and drove the fifteen miles to the Humanitarian Center. He shut the lights and engine off as he approached the Center and coasted to a stop at the gate. The Center was quiet and unlit, with little activity. Waiting at the gate were two figures - an adult and a child. Dan turned off the lights on the jeep, and he and Sara got out and walked quickly and quietly over to Aisha and Amina.

Dan picked up their bags and put them in the back of the jeep while Sara helped them into the back seat. Sara got back into the front passenger seat, and Dan slid in behind the wheel. He put the jeep in drive, started the engine, and slowly drove away toward the highway. From there, they drove back into Agadez to the Police Headquarters.

A block before the HQ, Dan turned off the headlights again and coasted quietly the rest of the way, coming to a stop on the back side of the building. The building was completely dark, with no one around. The back door opened, and two figures emerged from inside. Sara quietly opened the door of the jeep, got out, and walked over to the two figures. She handed one of them a small package, and then she and the second figure walked back to the jeep. The first figure slipped back into the building and shut the door. Sara got back in the front passenger seat while the second figure got into the back with Aisha and Amina.

“Papa!” Amina was surprised to see her father.

“Shhh, Amina.” Aisha quickly quieted her daughter.

Ismail hugged his wife and child as Dan drove off. Within a few minutes, Sara and Dan, Ismail, Aisha, and Amina were back on Highway RN25, driving south.

Five minutes south of Agadez Dan turned onto Highway RN11 toward Aberbissinat.

“We should be okay for a while - at least until 8 am,” Dan said. “By the time they realize you’re gone, Ismail, we’ll be close to the border.”

“If we can make it across into Nigeria, I think we’ll be alright,” Sara added.

“You have a plan for that, Sara?” Dan asked.

“I’m working on it.”

“Thank you, Ms. Sara. But you have put yourself in a grave situation,” Ismail said. “If they catch us, you will go to prison, also - you both will.”

Dan glanced over at Sara, then looked back at the highway.

“That’s not going to happen, Ismail,” Sara said, but inside, she was terrified. She had never done anything even remotely like this before, had not even gotten a speeding ticket. Now she was aiding and abetting the escape of a prisoner from a Niger jail.

She also felt strangely excited, though, exhilarated, even. Ismail’s arrest was truly wrong, and no one seemed to want to help him. That was plain. But she wanted to help him... no, she needed to help him... and his wife and daughter. It was unlikely, she thought, that the police would find them, especially if the guard she paid a $500 bribe to stuck to the plan and told his superior that he overheard the NBC News woman saying something about driving north to Tripoli.

Just in case the Police found out where they were heading, she knew she needed to have a plan in place to make the border crossing, and she’d have to have that figured out soon.

An hour into the drive, Sara turned around in her seat and looked back to see how the passengers were doing. Aisha and Amina were asleep, Aisha resting against Ismail, and Amina against her mother. Ismail was still awake, staring out the window into the darkness.

“What are you thinking?” Sara asked. “You look deep in thought.”

Ismail turned his head from the window to answer Sara. “I am thinking how our lives came to be this way.”

“What was life like where you came from, before all this happened?”

“My life was boring... My life was good,” Ismail halted briefly, reflecting. “I have a University degree, you know... I was born in El Geneina, in the western part of Sudan, in West Darfur. I grew up there. When I was eighteen I enrolled in the University. I worked hard for six years and received my Master’s Degree in structural engineering. I met Aisha - she was studying law there at the University, and we fell in love. We married after graduation and two years later Amina was born. I could not think of a better way to begin my life.”

Ismail fell silent for a moment, his mind off somewhere in a happier time. “At first I could not find work, so I opened up a book shop near the University.”

“What happened to make you leave?”

“We left because of civil war, because it was not safe there anymore...” Ismail paused, reflecting, as images of the his life during the past few years flooded his thoughts. Words seemed inadequate to describe what he, Aisha, and Amina had been through. Words could not tell the whole story.

“To really understand why we left, you have to know more of Sudan. My father said the people of Darfur have always been treated as if they were the poor offspring of Sudan, not worthy enough of consideration by the government in Khartoum. He said the people of Darfur were treated with less respect and were given less consideration than those in the east.

“When the climate began to change during my grandfather’s time, and the monsoons could not be depended on anymore, the Government did nothing to help the sheep herders and the farmers. My grandfather was a sheep herder, as was his father before him, and my father after him. When he was a young man, he would graze his sheep in the north during the summer and move south with them in the winter. He shared the land with the farmers who mostly lived in settlements in the south, tending crops. There was plenty of land for sheep and for crops then, and so they lived in peace for the most part.

“By the time my grandfather was an old man, the rains had nearly stopped in the Sahel, and the desert was expanding to the south. It became even hotter and drier, and the grasslands disappeared, replaced by sand. My grandfather and the other sheep

herders had to go further south, where there was still grass, but the farmers were living there, and there wasn't enough room for the sheep and the crops, so fights broke out. The Government was weak and indifferent to their needs, and did nothing to help, so the people grew more and more angry - until fighting broke out and rebels attacked the Government. In response, the Government sent the Janjaweed to fight the rebels."

"Who were the Janjaweed?" Sara asked.

"They are militias the Government uses, along with their own troops."

"So fighting broke out between the Government militias - the Janjaweed - and the rebels?"

"Yes, and the fighting just continued. Both groups started killing civilians. No one was in control. They would roam the countryside and do what they wanted. There were ceasefires, but they never lasted. More and more people died. Many in my family died. My brother, and uncle, and my cousin. My sister-in-law. Aisha lost her mother and father. The fighting and killing became too much. Hundreds of thousands of people have died. There was nothing to eat, nowhere that was safe. People were being tortured, raped, and murdered for no reason. Millions had to flee, but there was nowhere to go. No country wanted us. We were treated badly everywhere we went."

"I can't imagine how hard it's been for you, all of you, just trying to live your life in peace, to raise your daughter and keep her safe."

It was 3:15 in the morning when they reached Aberbissinat, 163 km from Agadez, and turned to the southeast, toward Tatokou. Another two hours and they would reach Tanout, where they could refuel. Gas stations were few and far between all the way to the Nigerian border. They had made one pit stop along the way, on the side of the highway, to relieve full bladders - a five-minute affair - and then piled back in the jeep again to continue their escape. Only one vehicle had passed them on the way, a bus going north.

The air was clear and the sky cloudless, the moon was in its waning crescent, and no light from cities or towns could be seen in any direction. The night sky revealed a stunning view of the Milky Way and beyond, a billion points of light from horizon to horizon.

"I never realized how incredible the night sky is here," Sara mused, looking out the window. "We miss so much by chasing after

all the wrong things in life."

"How will we cross the border, Sara?" Ismail asked. "I am sure the authorities there will ask for papers. They won't allow us through. They will send us back to the detention camp in Agadez, maybe to prison."

"There will be no more prisons or detention camps for you, Ismail, I promise you that. You all have endured enough."

"How *are* you going to get us across the border, Sara?" Dan asked in a barely audible voice. "You have that figured out yet?"

"Still working on it," Sara answered confidently, also in a whisper. "I know someone."

"I hope so."

78

At 5:25 am Dan pulled into a gas station on the outskirts of Zinder, a city of about 300,000, halfway to the border. Sara had been on the phone for the last hour and a half talking to everyone she knew who might have some influence in the area. After exhausting just about everyone she could think of, she was getting nervous. A couple more hours and they would be at the Nigerian border. If she didn't get some help soon... Well, she didn't want to think about that.

Then, it came to her. There was a businessman from London, she did an interview with a year or so ago, a broker dealing in gold and uranium ore, mostly out of Africa. During their conversations, he mentioned he had built an impressive network of connections - many in high places - all across Africa, but especially in Niger, Nigeria, and the Democratic Republic of the Congo. She remembered him because he seemed to be quite taken with her. He was in his eighties, sweet, always a gentleman, and happily married, he said, but if he were fifty years younger and still single, he might steal her away from Gary. Sara remembered him as sweet and always a gentleman during their conversations.

During their last interview, he had told Sara that he felt life had been good to him and that he was a very fortunate man. Over the course of his life, he said, he had made a small fortune, that he had lived a full and productive life, and that he wanted for little, but he confessed to her that, as he looked back on that life, he realized that he had done little to give back, to make the world a better place. He

didn't want to die knowing that he had only enriched his own life, without helping others. He wanted to do something good, something meaningful, to make a difference before he died, something his children would be proud of. So, he told Sara, he had started a foundation to provide educational opportunities for young women throughout Africa. He believed education was critical to ending poverty and decreasing inequality.

So, while Dan was pumping gas, Sara decided to call the broker and ask him if he could make a difference in the lives of three people from Sudan who desperately needed a break. She wasn't even sure he was still alive, but she had nothing to lose by calling. There was no answer, so she left a message. It was two hours earlier in London, and he might still be asleep.

After she hung up, Sara went into the store and came back out with a bag full of junk food. She handed Dan a couple of protein bars and a drink, took out a protein bar and drink for herself, and gave the rest of the food and drinks to Ismail. Dan finished up and got back into the jeep, started it up, and drove back to the highway. He stopped there, opened the protein bar and ate it, took a drink, and pulled out onto the highway.

"Another four hours and we'll be at the border. We're making good time.

"And so far, uneventful," Sara added.

Ismail, Aisha, and Amina started working on the bag of food.

Dan navigated his way slowly through town, careful to obey the speed limit and not break any traffic laws, and turned west onto highway RN1, leaving town.

About twenty minutes into the drive from Zinder, Sara's phone rang. On the other end was the broker. "Ms. Campbell, hello, it's been a while. It was good to hear from you, but I wish it were under better circumstances."

"Mr. Sherwood, thank you for returning my call so quickly."

"Of course, my dear. I'm sorry to hear your friends are in such dire straits. The civil war in Sudan is devastating. So many dying, so many starving. The atrocities, and no place for them to go. So many countries are turning their backs, just when these poor people need them the most. I would like to help. Whatever I can do."

Sara explained the situation to Sherwood. They all needed to cross the border into Nigeria without incident and under the radar. Her passengers had no passports or papers, and they were fugitives.

In fact, they all were fugitives at this point. Would he be able to make that happen?

"Yes, of course. I'll make a few phone calls and get back to you within the hour," Sherwood assured her. "If there is anything you need in the meantime, just let me know."

Sara thanked Sherwood, and they hung up.

Dan looked over to see Sara smiling. "Looks like we might just pull this off."

"Keep your fingers crossed."

True to his word, Sherwood called back about forty-five minutes later. The sun was beginning to crawl up above the horizon, lighting the countryside. They had reached Takieta, about 70 km west of Zinder, and just turned south onto Highway RN10. Sherwood told Sara he had spoken to "some people in the right places" and was assured that Sara and her friends would have no trouble entering Nigeria. All they had to do was identify themselves to the border authorities with the aliases Sherwood provided, and they would be allowed through, no questions asked. If there was a problem, Sara was to call Sherwood immediately. Sara again thanked Sherwood for his help, and they talked for a few minutes and then hung up. Sara took a deep breath and let it out.

Dan looked over. "Well, what did he say?"

"So far, so good. We seem to be cleared to cross the border." Sara turned to look toward Ismail. "We will be able to cross the border into Nigeria, Ismail."

"Thank you, Sara, thank you. Thank you... all of you." Ismail was relieved. But still, he had been in this position many times before - within reach of a normal life again, only to have it cruelly snatched away at the last moment." Where will we go then?" He asked.

"The plan is to get you out of Africa... to Australia, if you want. Or, if you would rather go somewhere else, Europe, maybe, we may be able to do that. But you'll have to let me know soon... by the time we cross into Nigeria. Talk it over with Aisha." Sara turned back around in her seat, facing forward.

"You can do that?" Dan asked quietly.

"I hope so." They looked at each other for a brief second, then faced forward again, staring in silence at the highway that stretched out ahead of them. They were less than an hour and a half from the Niger/Nigeria border. Traffic was beginning to pick up.

RN10 is an important part of the Trans-Sahelian Highway Network, a complex of highways that connect a number of western African countries, including Chad, Niger, Nigeria, Burkina Faso, Mali, and Senegal. The primary highway in the system is the Trans African Highway, connecting Ndjamena, Chad, to Dakar, Senegal, on the Atlantic coast. RN10 follows the same ancient trans Saharan trade routes used by caravans carrying spices and textiles between Niger and Nigeria, which, in modern times, allows Niger access to seaports for international trade.

"We would like to go to Australia, if that is possible." Ismail broke the silence after an hour of driving. Sara had heard Ismail and Aisha whispering back and forth in Arabic for most of that time, presumably discussing the pros and cons of living in Australia versus Europe. She knew they weren't on the same page, at least not at first; however, one would get louder, and the other would shush the offender. Eventually, the tone of the interchange between the two quieted down, and Sara assumed they had come to some sort of agreement.

Ismail continued. "We have seen enough of killing and torture, and we also do not believe that Europe will be good for us, but it was the best we believed was possible. Now, maybe there can be more."

"Maybe there can be more, Ismail, more for all of us," Sara said. She felt an obligation to tell Ismail what was going on in the wider world, explain that it would not be a smooth transition. "Maybe it is possible to have a more fair and just world. One where everyone is important, where everyone counts, not just the few, not just the rich and powerful.

"The world is at a turning point right now, Ismail, and we have a chance to reset the way we live, the way the world is governed. A chance to stop the great Pandemic that is killing our children, a chance to save our environment, for us all to have enough food, water, and wealth. To end, forever, the kind of life you and Aisha and Amina have been enduring for years. You may not have seen it or heard about it yet, but protests are taking place all over the world, like the one you started in Agadez, only bigger, and in every city."

"And just when you thought your life was going to get more predictable, stable, and secure." Dan joked.

"We have heard talk at the detention center of what you are

describing - about large protests in Tunis and Tripoli... and Algiers. And even in Europe - in Italy and Spain, and Greece." Ismail said. "Is it truly worldwide?"

"Yes, it is, in Europe, in Asia, in North and South America... and in Australia, too. And it is beginning to break down society. It is a scary time for all Peoples. But one of hope, also."

"So, we will be protesting in Australia, too," Ismail said.

"Yeah, but you'll have more to eat," Dan joked. Then, his tone abruptly changed. "Alright, people, we're coming up on the border crossing."

Dan slowed the jeep down as he approached the border station and pulled up behind a dirty white van. There was already a line nearly a kilometer long, of cars and pickup trucks, flatbed trucks, commercial vehicles, tractor trailers, motorcycles, and people on bicycles and on foot, waiting to cross into Nigeria. Some trucks were parked on the roadside with the doors open, the drivers sitting, eating breakfast out of a bag. Others sat behind the wheel of their trucks, waiting, and some were out on the road talking, waiting for the line to move. The road was dusty and dry, and parched-looking in the harsh light of the morning sun. Dust swirled about as vehicles passed by going north, having passed across the border from the Nigerian side. A haze of dust made it hard to see more than 200 meters in either direction.

Everyone in the jeep was nervous, not sure what was going to happen. Sara and Dan had passports, but Ismail, Aisha, and Amina had no papers at all. But that was all moot because Sara and Dan had broken Ismail out of jail and were now accomplices. They would all go to prison. By now, the authorities in Agadez knew they were on the run and had probably alerted the Niger border guards at the crossing. It was possible the guards were just waiting for them to show up. They could only hope Sherwood had taken care of everything.

Slowly, they inched their way closer to the crossing, as the vehicles in front of them were checked and allowed through. Finally, Dan brought the jeep to a stop at the crossing gate, a long, slender pole-like affair, cantilevered on one side to ease raising and lowering it. Closed, the far end sat in a cradle on a post about 2 meters high. On the side of the road was a small guardhouse, windowed on all four sides, with a door facing the road. Off to the side, in a small parking lot, sat two military trucks. Three guards

were standing near the trucks, talking and laughing.

Two guards approached the jeep on Dan's side, both carrying automatic rifles and handguns in holsters at their sides. Dan rolled down his window as they stopped by his door. He said good morning to the guards, but received no response. One of the guards leaned over and peered into the jeep, his face expressionless, as he looked at each passenger in turn, studying their demeanor. Sara was sure they knew. Ismail, Aisha, and Amina sat quietly in the back seat, trying not to show the terror they were feeling. Ismail and Aisha made eye contact with the guard and maintained it. They knew if they averted their gaze or looked down, they would look guilty, that they were hiding something.

Finished perusing each occupant, the guard straightened back up and asked for their passports and papers. Dan looked at Sara. Sara reached slowly for her backpack. "I have a paper in here that will explain everything," she said. The guard watched Sara, his hand on his sidearm, as she reached into a side pocket and pulled out a paper, folded in quarters, and handed it to Dan. Dan passed it to the guard. The guard unfolded it and stared at it for a moment, then looked back at the passengers again.

"Pull the vehicle over to the side and turn the engine off. Wait there," he turned and walked back to the guardhouse.

Dan pulled the jeep over and stopped, then turned off the engine. The other guard walked over and stood by the jeep, his hands on the weapon that hung from a strap over his shoulder. Dan smiled faintly and then looked straight ahead.

"Think he knows who we are?"

"I'm sure of it. He's probably been alerted already by the police at Agadez. He's just trying to decide who he's going to listen to."

"I hope it's Sherwood.

The guard with the paper stepped into the guardhouse. He picked up a phone and appeared to make a call. Within a few seconds, he was talking to someone. Dan and Sara watched him intently, unable to tell if the conversation was going well or badly. After a minute or so, the guard put the phone down and stared out the window toward the jeep. Sara could feel his eyes penetrating the interior of the vehicle. An intense wave of anxiety washed over her. Adrenalin and cortisol were being dumped into her bloodstream, constricting her blood vessels, dilating her eyes, raising her blood pressure - preparing her for "fight or flight." Her

heart felt like it was going to jump out of her chest, and she could feel her pulse in her ears.

After what felt like an eternity, the guard broke his gaze and walked out toward the jeep. He stopped at the other guard, the one standing watch, and whispered something to him, then continued over to the jeep. When he got to the side of the car, he motioned for Dan to roll the window down. Dan did so.

“You are free to go.” He handed the paper to Dan. “Enjoy your stay in Nigeria.”

Sara nearly passed out with relief as her blood pressure plummeted. “Thank you.”

Dan smiled briefly, thanked the guard, started the jeep up, put it in drive, and eased out from the parking area. A guard held traffic back while Dan pulled out and up to the gate. The gate went up, and Dan drove across the border into Nigeria. For the first time in many years, Ismail, Aisha, and Amina felt freedom was, at last, a real possibility.

But, they would first have to get to Australia.

Their flight to Australia was no longer straightforward and simple. It would be unpredictable, difficult, and uncertain. Flights into or out of Nnamdi Azikiwe International Airport in Nigeria were a fraction of normal... and highly unreliable. Air traffic controllers and security officers were calling in sick. Many aircraft maintenance personnel, reservations, freight, and gate agents, and skycaps had outright quit and joined The Movement. Departures and arrivals were being canceled or rescheduled without notice. Aircraft fuel was becoming scarce.

Under normal conditions, their trip to Melbourne, Australia would take thirty-three hours and fifty-five minutes, with two layovers - 1 day, 9 hours, and 55 minutes. The first leg of the journey would be from Abuja to Doha, Qatar, a flight of 6 hours and 50 minutes - 788 miles. After a layover of one night, the second leg from Doha to Kuala Lumpur, Malaysia, would take 7 hours and 50 minutes, and 333 miles. The last leg would leave Kuala Lumpur later the same day, and arrive in Melbourne the following morning, a flight of 339 miles, taking 7 hours and 45 minutes.

This particular trip would be a grueling ordeal lasting 173 hours and 39 minutes - 7 days, 5 hours, and 39 minutes. Their flight to Doha would be diverted, mid-flight to Borg el Arab International Airport in Alexandria, Egypt, because civil war had erupted in

Qatar, and landing in Doha would be too dangerous.

After a layover in Alexandria of thirty three hours, where they would sleep on chairs in the airport terminal, Sara, Dan, Ismail, Aisha, and Amina would catch a flight to Jinnah International Airport in Karachi, Pakistan. From there, they would fly to Muscat International Airport in Oman, Jordan. After a layover there of 27 hours and fifteen minutes, they would get a flight to Suvarnabhumi Airport in Samut Prakan, Thailand.

Demonstrations at the airport, however, would prevent refueling of the aircraft, so they would have to rent an SUV and drive ten hours to Ubon Ratchathani, Thailand, to find a fueled commercial jet that would fly them to Seoul, South Korea. Incheon International Airport in Seoul would be enveloped in demonstrations when they got there, and protests later that day would shut down all runways. When airport security and Seoul Police were able to clear the runways two days later, Sara and the rest of the group would fly out to Kuala Lumpur. From there, the exhausted travelers would be able to make the final leg to Sydney, Australia.

Flying anywhere in the world was becoming increasingly difficult - and dangerous. The Global Mass Movement James deBrum had called for was happening. The predictability of flying from one city to another was no longer a given. Unpredictability was becoming predictable. Pilots were striking. Flight attendants, mechanics, ticket agents, cargo handlers, security personnel - all support staff - were all walking off their jobs. Air traffic controllers and support technicians were joining picket lines or protest movements. Demonstrators were interfering with take-offs and landings, blocking incoming and outgoing vehicular traffic, and shutting down runways.

In the United States, the FAA Academy in Oklahoma City was moving first-year students into critical positions, hoping for the best - and that was leading to accidents on the ground and close calls in the air. The only thing keeping the situation from reaching tragic levels was the phenomenal drop in the number of planes in the air at any one time. On a typical day before the Pandemic struck, there were a combined 102,465 takeoffs and landings worldwide, and an average of 12,000 to 14,000 planes in the air at any one time. Those numbers were now down almost 50%, and continuing to fall further.

79

17 July 2029 Tuesday
Canberra, Australia

Dan pulled up in front of Sara's house at 10:53 pm and turned the engine off. It had been a long day. They sat quietly for a few moments, staring out the front window, reflecting on the past few weeks. Seeing first hand the enormous human tragedy of hunger, genocide, homelessness, and exploitation, in an increasingly hostile world, was physically and mentally draining.

"Some assignment, huh?" Dan continued to stare forward.

"Yeah..."

"We were able to make a difference in the lives of three people..."

"We were, weren't we? It felt good, Dan, to do that, but there are soooo... many more. There are millions more."

"I know Sara... I know. But... you still did a really good thing. You didn't have to do that, but you did. You made a real difference... and Ismail, Aisha, and Amina will never forget that someone really cared - that you cared. They will never forget you."

"And you," Sara said. "Thank you, Dan, for all you did... for not stopping me, for being there every step of the way."

"You're welcome, Sara. It was fun." Dan smiled. "It's the most exciting thing I've ever done."

"Me too." Sara smiled back. "We'll have to do it again sometime."

“It’s a date!”

“Well… I’m tired. I need to get some sleep.” Sara opened her door and got out. Dan helped her with her bags to the front door of her house, said goodnight, and then left.

Sara opened the front door, searched for the light switch on the inside wall, to the left of the door, and flipped it on. She threw all her bags on the floor inside the door, staggered in, closed the door, and locked it, dropping her keys on the kitchen counter. She thought to herself how good it was to be home… and how close she came - they all came - to ending up in a prison halfway around the world. But, yes, Dan was right. They did do a good thing. It felt amazing, too.

She was in no mood to put the bags away, nor did she have the energy, even if she wanted to. They would still be there in the morning. She thought about Gary, how she missed him. She wanted to tell him all about her little adventure. She had talked to him that morning when she landed. He was still in Melbourne, at a protest - wouldn’t be back until tomorrow morning.

Sara looked around. Thought about what she had, how she lived, how lucky she was, and how hard it was for a great many people in the world. She turned the lights off in the kitchen and went into the bedroom, dropped her phone on the nightstand, kicked off her sneakers, and fell face forward onto the bed. She was asleep within a minute.

Then, her phone rang.

Sara groaned and, still lying face down on the bed, reached toward the nightstand, groping for her phone. Finding it, and fumbling it, she pulled it toward her and answered it. “Hello,” she said sleepily. She recognized the voice on the other end - someone who worked with Gary, coordinating the protests.

“Sara… it’s Thomas. Gary’s been arrested.”

80

Freedom and democracy are never easily achieved, but can be easily lost without continued vigilance, education and active participation by the populace. Once lost, it can only be re-gained at a steep price, because those in power will have become corrupted by that power, and will use every tool and method at their disposal, whether fair or unfair, to hold onto it. They will not give it up without a fight - and they will not give it up unless they have no choice.

Ismail, Aisha, and Amina had escaped the refugee detention camp only to be thrust into a civilization-wide struggle to save itself. Society was failing - tearing itself apart at the seams. In its drive to make life better, society had overstepped. It had failed to remain vigilant. It had lost its way and had created a world of polar opposites: of phenomenal wealth for a few and incredible poverty for most, of extraordinary excesses and desperate starvation, of privilege and oppression, of life and of death. Society had overshot its planetary boundaries and ravaged its life support systems, and now it would have to self-correct. Tear itself apart to rebuild itself. Protests, strikes, work stoppages, and demonstrations were affecting every aspect of society - transportation, manufacturing, energy and food production, construction, communication, education, health care, and raw material extraction.

Seaports, distribution centers, train depots, and air terminals around the world were being affected, crippling shipping, trucking, rail, and air transport, shutting down supply chains. Cargo ships

and oil tankers lay empty, stranded and abandoned outside of harbors. Full ships lay anchored alongside the empty ones, with no one to offload them. Trucks, trains, and planes were idle at warehouses and terminals. Manufactured goods were disappearing from shelves everywhere. Oil, coal, and natural gas supplies were plummeting due to a dwindling workforce and sabotage. Businesses, large and small, with no goods to sell and no one to sell them to, were shuttering their doors, driving unemployment ever higher. Only the mega-businesses, the giant corporations, with enormous wealth behind them, were still able to hang on. By late summer, thirty-five percent of the workforce in all developed countries were either on strike, protesting, or had lost their jobs due to business closures. People in developed countries were beginning to run short of food.

Worldwide, financial markets had been sliding since the Pandemic had taken hold in the summer of 2027. By the summer of 2028, after having declined 25%, stock prices stabilized and then began to rebound as investors became optimistic that an RSV vaccine would soon be developed. People felt that, even if it took a bit longer than expected, there would be a dependable supply of Fungal Anti-Viral available in the near future.

But, after the failure of the world to commit to ending fossil fuels, and the news that developing a vaccine would take years longer than expected, the world was told by experts that a small rise in temperature would likely shut down the biological processes that produced the anti-viral. Riots began to break out, and the markets went into free-fall, losing an additional 42% by late summer. Within the span of five and one-half years, the markets had tumbled 67%, and $83.1 trillion dollars of wealth evaporated. There was fear that the losses would surpass those experienced during the Great Depression, when stocks lost 85% of their value between 1929 and 1932.

The loss of wealth was devastating to all but the wealthiest individuals. Retirement and savings accounts disappeared, and credit tightened further.

Conventional power-generating stations were running out of fuel and personnel to run them, resulting in widespread brownouts and blackouts. Nuclear plants, safe for now, were being closely guarded.

Crops were left withering in the fields, with almost no one to harvest them. In the United States, where half the country's

agricultural workforce had historically been undocumented, years of mass deportations and strict immigration policies beginning in 2025 had already caused a chronic problem in field production and harvest, food processing, and restaurant industries. Post Brexit in 2020, the UK's withdrawal from the European Union and subsequent restriction of foreign agricultural labor left it vulnerable also. But, even if harvested, there were few trucks to transport the produce. In Developed Countries, where food was historically plentiful, grocery stores were quickly running short, causing panic and hoarding, which made things worse. Bottled water and canned goods were running out.

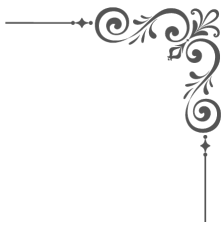
Food shortages were exacerbating the already existing worst global food crisis in modern history. Before the Pandemic, 350-400 million people in the world were food insecure, and 50-60 million were on the verge of famine. In the midst of the Pandemic, the number of people in Africa alone who were malnourished had risen to 450 million. The crisis precipitated by the worldwide mass protests had now pushed the number of starving people in Africa to over 500 million - fully one third of the continent's population.

Governments were desperately trying to hold onto control. Africa, the birthplace of the human race, was now becoming ground zero for humanity's demise. Nearly every baby born since the Pandemic began was succumbing to RSV. Increasing frequency of droughts, unbearable summer heat, unstable and unpredictable monsoons, insufficient food and water, already serious problems in Africa, were escalating civil wars and atrocities, and bringing the continent to its knees. Mass demonstrations were taking place in most of Africa's major cities - Kinshasa, Lagos, Cairo, Johannesburg. Security was evaporating everywhere on the continent, swelling the number of displaced people to 150 million. Refugees were flooding the North African cities along the Mediterranean Sea, and migrating overland into Greece and western Europe, joining in the protests. Libya and Sudan were on the verge of collapse, with the Democratic Republic of Congo, Niger, Chad, Somalia, South Sudan, and Ethiopia destabilizing.

Outside of Africa, Haiti, Afghanistan, Central and South America, Myanmar, and Yemen, already suffering under the strain of colonialism, climate change, endless civil wars, and now a Pandemic, were beginning to collapse as well, under the staggering weight of the worldwide revolt. A tragedy beyond comprehension

was unfolding in Gaza, where the Palestinian people, who had been suffering under forced displacement by Israel since 1946, and unrelenting genocide in Gaza, for the past six years, were starving to death, and were nearly an extinct people.

And yet, even in the face of collapsing economies, destabilized and failing governments, and increasingly deteriorating conditions - food shortages, increasing homelessness, foreclosures and bankruptcies, government crackdowns and spreading anarchy, the poor and the exploited were not giving in. They no longer had anything to lose and were ramping up pressure on governments, rather than giving up. They had passed the point of no return, and there was no going back.



81

20 July 2029 Friday
Melbourne, Australia

Sara had gotten to the Victoria County Courthouse in downtown Melbourne early, hoping to avoid any protesters who might show up, but found that a large crowd had already gathered outside. They had been there since the night before. Probably two hundred and fifty people, maybe more, were walking up and down Lonsdale Street, in front of the courthouse, carrying signs protesting Gary's arrest and calling for his release.

Sara found it impossible to get past the protesters to park in the parking garage. She would have to find another way. Not only was there a crowd at the courthouse, but there was another, even larger protest, taking place at the Victoria Supreme Court across the street. That protest had been going on for three and a half weeks, and had completely shut down traffic all the way to Marvel Stadium and the Docklands to the west, and almost to the Yarrow River five blocks to the south. The two protests had now coalesced, causing a massive, city-wide traffic jam and a huge headache for city officials.

Sara turned around and backtracked to Elizabeth Street, where she made a left, then another left on La Trobe. She drove three blocks, past Flagstaff Gardens, turned left onto A60, then another left onto Little Lonsdale, and finally pulled into Flagstaff Car Park, only a block west of the courthouse.

She used her press card to get inside the courthouse and found

her way to Courtroom 3, just ahead of a large and boisterous group of protesters.

The Public Gallery of Courtroom 3 was full to overflowing - although, truth be told, that wasn't very difficult to do. The Public Gallery, at the back of the courtroom, was quite small, accommodating possibly ten to twelve people at most when sitting in the chairs provided. On this morning, however, there were four times that number, all standing shoulder to shoulder, packed in like sardines, talking and gesturing loudly to one another. It was unusual that a court hearing of this sort would garner so much attention. But these were unusual times. It was apparent they were outraged with the charges brought against Gary and were convinced they were bogus.

Three court officers entered the courtroom, followed by the Crown Prosecutor. The Prosecutor, dressed in a black gown, over a white shirt, with a white jabot, went straight to his bench, dropped a folder filled with papers onto it, and sat down. He looked over, expressionless, while another Barrister, the Public Defender, entered the courtroom, followed by a uniformed officer, and Gary. All three stopped just inside the doorway, startled, as the crowd at the back of the courtroom erupted in chants - "Release Gary Sanders. Release Gary Sanders..."

As he looked around at all the familiar faces in the Gallery, Gary's eyes met Sara's. It was easy to see she was worried. She silently said, "I love you."

He smiled. "I love you, too."

The Public Defender continued on to the Defendant's Bench and sat down. The officer, holding tight to Gary's upper left arm, walked him to the Bench, unlocked and removed the handcuffs from his wrists, and walked back to the side of the courtroom. Gary sat down at the Bench next to the Public Defender. He was still dressed in the clothing he wore when he was arrested three days ago.

The chanting was now deafening. "Release Gary Sanders. Release Gary Sanders." In unison, all the supporters in the back of the courtroom, and all those outside the door began shouting, making it impossible for anyone to be heard inside.

Suddenly, an officer triggered an air horn, releasing a long, painful, ear-piercing blast, causing everyone to cover their ears. The officer called for everyone to cease shouting or they would be removed from the building, then ordered them to stand as the

Magistrate entered the courtroom. The Magistrate quickly stepped up to the Bench and sat down, and instructed everyone to sit. Nearly everyone in the Gallery remained standing, as there was nowhere to sit.

"Case 2029/CR/376, the Crown versus Gary Sanders," the Court Clerk announced, reading from the file in front of her. She handed the file to the Magistrate, who laid it down on the bar and opened it. The Magistrate glanced through the first few sheets, perusing the contents, looking up over her bifocals now and then at Gary, and then returned her attention to the file. Seemingly satisfied, she looked up from the file and focused on Gary.

"Mr. Sanders," she said, in a measured tone, "you are appearing here today before this court following your arrest on charges of inciting a riot on the 17th of July 2029, at the Port of Melbourne. Do you understand these charges?"

Gary looked at the Magistrate, then turned to look at Sara, catching her eye as he stood up. Sara shook her head ever so slightly side to side. "No, Gary, don't do anything stupid", she seemed to be saying. Gary turned his head back and looked at the Magistrate.

"I understand the charges, but I reject the legitimacy of this court to charge me."

Everyone in the Gallery erupted in cheers. "Release Gary Sanders. Release Gary Sanders..."

Sara couldn't agree more, though she remained silent, knowing his statement wouldn't help his case much. Gary turned to look at the Gallery, inwardly appreciative of the support, but showed no reaction. He sat back down and looked straight ahead.

The magistrate slammed down the gavel repeatedly until the crowd quieted down. "Another outburst like that and I will clear the Gallery," she bellowed. She looked back at Gary. "Be that as it may, Mr. Sanders," the Magistrate said, "this Court does have jurisdiction here, and you have been so charged." She looked to the Crown Prosecutor, indicating it was his turn to speak. "Mr. Westcott?"

The Crown Prosecutor rose to his feet and addressed the Magistrate. "Your Honor, the Crown will present evidence alleging that Mr. Sanders directed a crowd of protesters to commit violence and destructive behavior at the Port of Melbourne, and that three protesters did, in fact, destroy a vehicle belonging to the Port Authority by setting it on fire. We have video and eyewitness

testimony that directly links Mr. Sanders' actions to the acts of destruction and violence." The Prosecutor walked back to his Bench and sat down.

The crowd erupted again in anger. "No way!" "It didn't happen!" "Fucking liar!"

Gary was astonished. It was like being punched in the gut without warning. He turned to the Public Defender sitting beside him. "That's a lie!" His eyes were wide with rage. He stood up, knocking his chair over backwards, and looked at the Prosecutor. "That's a fucking lie! I had nothing to do with that." He started for the Prosecutor.

The Public Defender jumped to his feet and grabbed Gary by the arm, stopping him from advancing any further, then leaned in toward him, whispering something in his ear. Gary glared at the Prosecutor for a long moment, then turned and went back to his bench, picked up his chair, righted it, and sat back down.

Sara couldn't believe what she just heard either. Where are these charges coming from? She knew Gary would never encourage violence. She thought of Ismail and his false arrest. "But that was Niger," she thought. "It can't happen here, not here... in Australia. Not here."

The Magistrate banged the gavel down. "Quiet!" She yelled. "I will not have these outbursts. One more time and you will be escorted out."

The Public Defender got up and walked out to the middle of the room and faced the Magistrate. "Your honor," he said, looking over to Gary, "there's no question Mr. Sanders took part in the protest at the Port of Melbourne... or that he is one of the organizers of the Protest. But he did not in any way encourage anyone there to engage in violence or to destroy property. We have eyewitness testimony that, in fact, he did just the opposite, that he did all in his power to encourage nonviolence and peaceful civil disobedience. That destruction of property did occur, he does not deny, but he had no part in its occurrence, and it can not be attributed to him..."

"Thank you, Mr. Hutchins," the Magistrate said. She waited for the Public Defender to sit down, then looked at Gary. "Mr. Sanders, you are not required to enter a plea at this time. This is just a preliminary hearing to determine if there are sufficient grounds to warrant a trial. She then addressed both Barristers. "We'll now accept submissions on both sides and see where that takes us. Mr.

Westcott, are you prepared at this time to submit initial evidence?"

"Yes, your Honor, we are." Westcott stood up from his chair. He looked down at his open file for a moment, studying the contents of the top sheet, then proceeded to outline the events of 17 July 2029 leading up to the arrest. He showed video footage taken by the police of the protest, and footage of three individuals setting fire to a Port Authority van. The Magistrate asked Westcott if he had identified the individuals and if they had been arrested.

"No, your Honor, not as of this morning. After the incident, they seem to have left the scene before we could arrest them. We are still looking for them."

"Do you have any evidence to present linking these individuals with Mr. Sanders?"

"We do, your honor," Westcott responded, and he proceeded to show a police video of Gary talking to two of the three individuals shortly before the incident.

Gary sat up in his chair and watched the video intently, as did the Public Defender, jotting notes. The people in the Gallery, Sara included, strained to see but were unable to make out much detail from their vantage point at the back of the room. The video seemed to have been taken from fifteen or twenty feet away from Gary and showed clearly how chaotic things were. Protesters came and went on screen, shouting, waving signs, gesturing, laughing, and cursing. Two police officers also appeared briefly at different times. The video, though interrupted by all the activity, clearly showed two of the three men talking to Gary. It was impossible to hear what they were saying because of all the commotion, but they were definitely talking to each other.

Gary recognized the men, then remembered the incident. "That's bullshit!" He yelled. "We weren't even talking about..."

The Gallery erupted again.

The Magistrate banged her gavel down on the bench. "Quiet," she yelled. "Counsel, control your client... and quiet in the back, I'm warning you."

Hutchins reached over to Gary and tried to quiet him, but Gary was visibly agitated, shaking his head, and angrily denying the Prosecution's depiction of the incident. Hutchins did his best to quiet Gary, who looked over to Westcott, glared at him, then said something else to Hutchins. He glared again at Westcott, then sat back in his chair and folded his arms across his chest.

Sara didn't know what to think of the video, but she knew Gary, and she knew he didn't tell those men to burn a van. He was being set up.

Westcott finished the video and turned it off.

"I'll admit this does not look good, Mr. Sanders, but by the same token, you'd better have something else, Mr. Westcott."

Westcott indicated he did, and said he had a witness to the conversation.

Gary looked dumbfounded. "A witness to what?" he thought to himself. "Nothing happened."

Westcott called a uniformed police officer to the stand. The officer was sworn in, and Westcott approached him. Westcott called for the video to be played over again and had it paused when the two police officers appeared in it. The police officer on the stand identified himself as one of the officers on the video and went on to say that he had overheard Gary "suggesting to the unidentified individuals that they 'burn some shit on the dock, and burn it good'"

Gary leaped out of his chair again, knocking it over. "Liar, fucking liar. That never happened," he screamed.

Hutchins jumped up and grabbed Gary, trying to control him.

The people in the Gallery screamed, cursed, ranted, and raved. Sara was shocked. "What is happening?" she thought. "This can't be true. Why are they saying these things?"

The Magistrate beat the gavel on the bench repeatedly, ordering the court officers to clear the Gallery. Sara and a few other reporters and cameramen were allowed to stay. The Magistrate read the riot act to Hutchins and assured him that the next outburst from Gary would be his last, and she would have him restrained.

"Do - you - understand," she said slowly and with great restraint.

"Yes, your honor."

"Do you understand, Mr. Sanders?"

Gary said nothing for a few seconds, as if weighing his options.

"Do you understand?" she asked again, looking at him intently.

"Yes, your Honor," Gary said through clenched teeth.

"Mr. Westcott, do you have any more evidence you wish to submit?"

"No, your Honor, that is all."

"Mr. Hutchins, do you wish to cross?" The Magistrate asked.

“Yes, Your Honor.” Hutchins got up from his chair and approached the Witness Box. He stared at the police officer for a moment in silence. “Officer Roberts, good morning.”

“Good morning.”

“How close would you say you were to the accused and the two unidentified individuals when you heard the alleged exchange?”

“About three meters.”

“And had you been there all the time?”

“I don’t know what you mean.”

“I mean, did you hear the whole conversation, from beginning to end?”

“Most of it.”

“What do you mean by most of it? What else did you hear?” Hutchins pressed.

“Just that the men smiled and one of them said, ‘We’ll burn it to the ground.”

Gary was up out of his seat again, leaning with both fists on the table, glaring, his mouth open. The Magistrate immediately leaned forward, caught Gary’s eye, and looked menacingly at him. Gary brought a fisted hand up to his mouth and pressed it against his bottom lip, closed his mouth, and clenched his jaw tightly, but said nothing. He looked at the police officer, then the Magistrate... then sat back down. Hutchins, who had turned to watch Gary, turned back to the officer. He questioned the officer’s ability to hear clearly a conversation three meters away, in the middle of a loud and boisterous protest, that would have been purposely very low-key to avoid being overheard, but the officer insisted he heard what he said he heard. Hutchins asked if he could have misinterpreted what was said. Again, the officer said no. Seeing that he was not going to get the officer to admit not hearing the conversation, he excused him.

Hutchins called two witnesses to the stand who were close to Gary at the time of the alleged exchange. Both were within a meter or two, and both said it was impossible to hear what was said. Hutchins then called Gary to the stand and asked him if he was in any way encouraging or instructing the two unidentified individuals to ‘burn some shit on the dock, and burn it good’”

“Absolutely not!” Gary answered adamantly. “I have always instructed protesters not to commit violence, or hurt anyone, or damage property. We are committed to non-violent civil

disobedience. Not violence."

Hutchins thanked Gary and indicated to the Magistrate that he had no further material to submit. On cross-examination, Westcott asked Gary if he was not plotting property destruction, what he was talking to the individuals about.

"It was personal... and it had nothing whatsoever to do with the Protest."

Westcott pressed Gary, but Gary refused to divulge the subject of the exchange - just that "it was personal and had nothing to do with the Protest, or anything illegal, and it was no one else's business.

The Magistrate, satisfied she had heard enough, said she was ready to rule.

"The fact that we have video of the act of arson being committed by the unidentified individuals, that the unidentified individuals appear to be speaking to Mr. Sanders shortly before the arson is committed, and we have testimony by a police officer under oath attesting to overhearing a conversation during which Mr. Sanders and the two individuals plotted to commit arson, there is sufficient evidence warranting a trial. Mr. Sanders, you will be held until such time as we have a trial."

Sara's heart dropped. She was angry at the decision... and fearful that Gary was being falsely accused on purpose. Someone was clearly out to get him.. She knew Gary. She knew he wouldn't authorize arson. They had talked about it. How could that police officer hear what they were talking about? And, why wouldn't Gary tell them what the conversation was about? Even more odd, with all the security cameras around, and them on video, why hasn't the Crown identified those men yet?

"We are finished here..."

"Your honor, I would like to make a statement," Gary spoke up before the Magistrate could end the hearing.

"Your Honor, we don't need to hear..."

"You're getting your trial, Mr. Westcott. Don't be greedy."

"Yes, Your Honor." Westcott was sure Gary was going to try to gain sympathy from the Court.

"Go ahead, Mr. Sanders. Read your statement. It isn't too long, is it?"

"No, Your Honor... Thank you." Gary pulled some crumpled, folded-up papers from his back pocket. He unfolded them, straightened them out, and began to read.

“The World, today, stands at the edge of darkness.

“Humanity has a decision to make, the most profound in its entire history. There are two possible paths forward. The current one we are on will lead to our extinction, the other to a full and fair life for all, far into the future.

“The World is broken. It no longer works for all of us, but only for the privileged few. The Capitalist way of life, with its demand for endless growth and consumption, its exploitation of most of humanity, and the destruction of the natural world, has served only to satisfy the insatiable hunger for wealth and power. It has created a world of enormous wealth for a few, and a world of poverty, exploitation, suffering, starvation, and despair for most.

“It has forced us to accept as normal a way of life that robs us of our dignity, equality, and freedom. Capitalism has sickened our rivers, streams, lakes, and oceans. It has poisoned our soils and foods, the water that we drink, and the air that we breathe. It has changed our climate and made life impossible for many. It is destroying the critical life support systems that keep us healthy, as well as the plants and animals we have co-existed with from the beginning.

“Capitalism only divides us, sets us one against the other, fosters hatred, wars, and death. It encourages a ‘survival of the fittest’ mentality and one of destructive competition. Capitalism is killing the very plants that can save our children.

“We can no longer recognize the legitimacy of our World governments as they are now structured. They are corrupt and use their power to enrich themselves and the wealthy who keep them in power. They prey on our fears, angers and feelings of helplessness to gain power. They allow our children to die to protect their wealth and power.

“We must reject our World’s system of governance, and replace it with one that is fair and just, and answers only to the people it serves. One that cherishes all Life and promotes harmony with the Natural World.

“It is time for a new Paradigm. We need a new way to live, a new way to govern, a way that values all life. One that encourages cooperation, understanding, and compassion, one that values each of us for who we are, not for what we have.

“We must accept only a true democracy, and an Eco-Social World.

“We have begun that fight for a better world. Now we must keep up that fight, for as long as it takes. We, the people, have the power to make it happen.

“We must all join in that fight, for it is for all of us that we fight. We must bring Government to its knees if necessary, to save it. We owe it to our children and grandchildren, to all the children yet to be born, for they deserve a good life, an equitable life - but most of all, they just... deserve... Life.

“We must fight this battle without violence, without looting, without hate. We must do it with love for one another, for our Earth, and for all the things that really matter. If we succeed, we will have made the single most important contribution to the betterment of humanity and for all Life on Earth.”

82

Fashion and apparel is a $2 billion industry, employing more than 300 million people worldwide. Fully forty percent of the market demand for garments comes from Asia and the Pacific.

The industry, however, significantly impacts the environment through its enormous water demand, consuming 215 trillion liters of water annually. Dyes and finishing processes account for one-fifth of the world's industrial wastewater, which ends up in waterways and eventually the oceans, impacting countless forms of marine life. Microfibers from synthetic fabrics pollute soils and waterways and find their way into our foods and bodies. Capitalism's obsession with endless growth and consumption encourages sales of disposable clothing and frequent style changes. Though the industry has allegedly expressed an interest in sustainable fashion, it would have to be tailored to fit into capitalism's business model. Nothing about capitalism is sustainable.

A Fashion Industry operating within an Eco-Socialist Society would be sustainable. It would benefit all participants - Retailers, Factories, Workers, Support Services - but would do so in an ecologically benign way. Gone would be the antagonistic labor-management relationship, the exploitation of workers and environment, the emphasis on profit, planned obsolescence, and continuous growth. Instead, the emphasis would be on need-based, democratically cooperative decision making, equitable resource distribution, and quality, durability, utility, and reduced

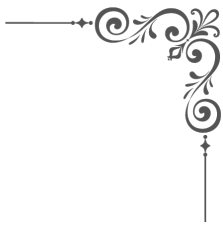
consumption of goods. “Repair, reuse, and recycle” is the motto of a sustainable fashion industry.

In an Eco-Socialist Society, private ownership of businesses would be replaced with publicly owned or democratically run worker cooperatives or community initiatives centered on equity and environmental stewardship. Profits, enriching only a few in a capitalist society, would instead be distributed to all workers in a democratically agreed-upon way to satisfy needs (rather than wants), greater freedom, and quality of life. Choosing ‘being’ over ‘having’, and quality of life over quantity (of possessions).

Workers would benefit through wages that covered their basic needs - healthcare, food, housing, and education. They would have the right to collective bargaining and to join unions that could negotiate on their behalf. Factories would provide safe, well-ventilated, and properly lit working environments that are sanitary and free from noxious chemicals. Workers would have the opportunity to advance their careers through education and technical training programs.

Forced labor and human trafficking would be eliminated, and young workers would be protected by strictly enforced child labor laws. Fair limits on working hours and pay for overtime would be guaranteed. Maternity leave and time off would be part of a benefit package. Workers would be treated with the respect they deserve and be considered a valuable part of the organization.

Discrimination based on race, gender, religion, or age would not be tolerated. Specialization would replace redundancy and competition, leading to long-term relationships. Predictable order volumes and reasonable lead and turnaround times would be agreed upon in advance. Retailers would be expected to pay the full and fair cost of goods produced, and to provide prompt payment for orders received.



83

26 July 2029 Thursday
Dhaka, Bangladesh

Tanisha Sarkar stood outside the entrance to her employer's business, looking down the street, gratified by what she saw.

But then, 'gratified' really wasn't the right word. Maybe satisfied. No, 'satisfied' wasn't right either. They just didn't capture the kaleidoscope of feelings that were running through her mind at the moment. True, she was gratified to see so many people turn out to protest working conditions for garment workers, but she was also angry that it was necessary to begin with. To the big retailers, H&M, Lidl, GAP, New Yorker, Next, and others, the factory workers in Dhaka's garment district were mere costs of doing business, extensions of the machines they operated. About the only time they thought about the people making their clothing was when scores died in a factory fire, or a building collapse, and public outrage threatened their bottom line, forcing them to promise changes that would improve working conditions.

But changes never came. Tanisha and her co-workers continued to come to the factory, put up with poor ventilation, hot, stuffy, almost suffocatingly stale air, toxic chemicals, fire hazards, and inadequate lighting. They all still continued to live on starvation wages, even though they worked 14 - 16 hours a day, seven days a week.

Her employer raged at her, belittled her in front of her co-

workers when she brought up the subject of unions, equal pay for women, or just *better* pay for women, or when she complained about temporary labor contracts, or layoffs without notice. She confronted him about his use of human trafficked labor, but he just denied it, and told her it was none of her business, anyway - and if she persisted in accusing him of such lies, she would regret it.

When she threatened to call a strike, he harassed her and threatened to fire her. She ignored him and continued to push for reforms anyway. He would threaten her again. She would try a different tack. In some ways, he had a begrudging respect for her, for her spunkiness and persistence, and... almost liked her. She was bright, sharp, quick to learn, and confident, and had an uncanny business sense. She reminded him of his daughter, who he had put through business school, and was now a successful manager for an investment firm in Teigaon District.

Tanisha had saved his business more than once, coming up with ingenious ways to cobble together big orders he couldn't afford to lose. He sometimes wondered to himself that, if Tanisha had had the same opportunities as his daughter, if she'd been able to go to the University, maybe she could be working for some investment firm too, right now, instead of working on the factory floor for the pittance he was paying her. Strange world. At any rate, he couldn't afford to fire her; she was too valuable - and she probably knew it.

Tanisha knew her employer wasn't solely to blame for all the ills of the garment industry, either. The big retailers shared a large part of the blame. She recalled how her employer, in a moment of great relief and appreciation, just after Tanisha had helped him out of a serious jam with a Target rep, had opened up to her about his relationship with Vendors, how little leverage he had, and what he had to do to satisfy them and make a living. Retailers squeezed factory owners to drive up their own profits, and the factory owners, in turn, had to cut corners wherever they could to stay in business. Labor has always been where the savings are.

The problem, of course, is that cutting labor costs leads to worker discontent, and discontent leads to protests. But, for the most part, periodic protests and strikes have resulted in little improvement in working conditions and wages. Factory owners found it easier to deal with disgruntled workers, who needed jobs to survive, than to deal with the big retailers, who could just take their business elsewhere. The factory owners had no leverage with

retailers, and the workers had little leverage with the factory owners.

Until now.

Workers across the world were walking off their jobs in massive numbers, and the work stoppages from strikes and protests were having an effect. Electric grids were breaking down, supply chains were crippled, food was becoming scarce, even in developed countries, and lawlessness was rising. Economies were faltering, if not outright shutting down, de-stabilizing governments.

Many nations were reconsidering their stand against the Peoples Agreement, or what some were now calling the Ottawa Agreement, issued by James deBrum a month ago. The ultimatum had united hundreds of millions of people around the world, and hundreds of thousands of disparate groups, each, until now, pushing their own agendas, but were now coalescing into one cohesive force, fighting for the same things - life, freedom, equity, justice.

Small Island Nations - the Bahamas, Fiji, Seychelles, Barbados, Solomon Islands, Haiti - and larger, Developed Island Nations - Iceland, Singapore, Ireland, New Zealand, Cyprus - as well as many African nations - Niger, Botswana, Ghana, Nigeria, South Africa, Tunisia - were already on board, had already signed.

Fifty-three nations in all had formally signed the Peoples Agreement. Also, agreeing in principle were Finland, Denmark, Norway, Sweden, the Netherlands, Switzerland, and Germany.

Tanisha felt it for the first time. The possibility for real change. Not something incremental, but something huge. A worldwide Peoples Mass Movement for good. A time of change like no other the world had ever experienced. And she was part of it. She had not only convinced her co-workers to strike against her employer, but she had managed to unite most of the factory workers in Dhaka to strike, nearly a million people strong, crippling more than 2000 factories in the city and nearly shutting down Dhaka's garment production completely.

But Tanisha wanted something bigger. She wanted to shut down the garment industry in Asia altogether. Only then would they have the power to force change. Asia produces the lion's share of clothing globally. Three hundred fifty thousand garment factories in Asia employ some 65 million workers - 75% of the global garment workforce. China, the second most populous country in the world, behind India, was by far the largest producer, with 322,000

factories and 8 million workers. Bangladesh (and Vietnam), though much smaller in size and population, still employed half as many workers in just 6-7 thousand factories. Other major Asian producers were Cambodia, Pakistan, and Myanmar. Together, these countries churned out 30-40 billion articles of clothing a year, worth over $500 billion.

By contrast, non Asian producers, those in North and South America, Eastern and Western Europe, and Africa, produced less than 10 billion articles of clothing annually, worth $150 - $200 billion. However, non Asian workers enjoyed significantly better working conditions and wages. While Asian workers worked ten to sixteen hours a day, six to seven days a week, under very difficult conditions, and struggled to make $95 - $400 per month, their non Asian counterparts worked half as many hours a week for more than twice the pay.

After repeated rebuffs by factory owners to entreaties for a meeting where workers could lay out their grievances and discuss ways to improve conditions, Tanisha called for a citywide walkout and protest. Owners were furious, as expected. They called for the police to intervene. Attempts to crush the protest failed. At first, the police tried, then the military, but they were far outnumbered... and sentiment was changing. The police had families, too, and they were suffering under the weight of the Pandemic, and the knowledge that their government had neither the will nor the desire to save their children. They watched as the wealthy took advantage of the Pandemic, of their suffering, their pain, to further enrich themselves. Many saw this as the last straw, their last, best chance also, to make things right. As cracks began to appear in the Institutions of Law and Order, not just in Dhaka, or Bangladesh, but in all countries, individuals who served those institutions began to break ranks and join in the demonstrations. For the first time, civilian protesters and police were demonstrating side by side.

Tanisha watched the crowd of protesters, thinking how everything had led to this moment and, in some ways, how strange it was - how different this protest was from all the others. People who seemed so different before, who were angry at each other, were now coming together.

She re-entered the factory and walked across the empty factory floor, between the rows of tables with their now silent sewing machines and vacant chairs. A few workers were still at their

stations, but most had left to protest. Tanisha could harbor no ill will toward them, even if she wanted to. She was protesting for them, too.

When she reached the back corner of the factory floor, she climbed the metal stairs to the offices on the second level and stepped onto the open walkway. She turned around and looked out over the floor. She thought about all the times she had looked up from her sewing machine to see her employer standing where she was now, watching her and the other workers below toiling away at their machines. She stood there for ten or fifteen seconds, her hands on the railing, while the images raced through her mind, before turning and walking toward her employer's office.

The second level and the factory floor were a study in stark contrasts. The floor was chaotic, noisy, hot, uncomfortable, and completely utilitarian - every available space filled with something that produced money. The offices above, however, gave the impression of success, power, cultural richness, and sophistication. They were air-conditioned, comfortable and quiet, and tastefully decorated with a blend of modern and traditional furniture, wall art and plants, and well lit, with a combination of natural and artificial lighting.

Tanisha opened the door to her employer's office and walked in, immediately feeling the rush of cold air wash over her. She closed the door behind her. Across the room sat her Employer, behind his desk, his head down, his chin resting on his right hand. He looked up at her, expressionless, then returned to his own thoughts. Neither said a word for many seconds.

"Mr. Bhaduri..."

"You have ruined me, you know that, Tanisha?" Mr. Bhaduri cut Tanisha short. "You have destroyed my business... and probably all the others in this city."

"We are only asking for what is right, Mr. Bhaduri," Tanisha said quietly.

"What is right?" Mr. Bhaduri asked, his voice sullen. "You think this is right? You think shutting down my business and putting all the workers on the streets to protest will help? You now have no jobs, no pay. You will all starve. You think that is right?"

Tanisha tried again. "They were starving before. That is the point. We are asking only for what is reasonable - for fair pay and fair hours, and safe working conditions. We deserve that. We cannot

feed our families on the pay we get. We work seven days a week for you and still do not make enough money to live. You treat us like animals. If we protest, you threaten us, you have us beaten and thrown in jail."

"Well... not any more," Mr. Bhaduri shot back angrily, "you have seen to that."

Beneath that angry exterior, Mr. Bhaduri hid a large measure of guilt, however. Though he didn't let on, he couldn't help but understand Tanisha's plight. In a dark corner of his subconscious, he understood her hopelessness. He wasn't always this well off. He grew up in Korail, one of Dhaka's biggest slums, a sprawling makeshift settlement of 90,000 poor souls, only a stone's throw from the affluent neighborhoods of Banani and Gulshan, and not all that far from the garment factory he now owned.

He, his mother, father, and two sisters lived in a ramshackle one-room home built of discarded boards, cinder block, and plastic sheeting. His father worked seven days a week peddling a rickshaw for $5.00 a day, while his mother worked in a cemetery three days a week. Mr. Bhaduri recalled how the rich businessmen his father ferried from one place to another looked down on their driver, or worse, gave him no thought at all. He hated his life then, and both resented and envied the rich businessmen, with their country clubs, fancy cars, expensive suits, and gold watches, and the family vacations to exotic places.

But, he also remembered that if it wasn't for the benevolence of one of those rich businessmen, giving him a chance, as a young man, to help run a garment factory, he might still be dirt poor today - no better off than the people who worked for him. No better off than Tanisha.

A little help can go a long way.

But then, Mr. Bhaduri fought back against those childhood memories, suppressing them, and became defensive again. "What could I do? My hands were tied. I would help the workers if I could. The corporate retailers are squeezing me, reducing my profits to almost nothing. I have no money to make repairs or to pay higher wages. I am not rich. I am doing the best I can."

Tanisha, at some level, understood his predicament, identified with his anger, frustration, and feeling of defeat - maybe even felt a little sorry for him. But then, she lived his frustration and anger ten times over every day. "This is not what we wanted to happen. It is

still not what we want. What you see in the streets is not just our anger over pay. It is much more than that. It is anger over a way of life that does not have to be - the never-ending deaths of innocent babies, the floods, the crushing heat, the daily struggle to feed ourselves and have clean water to drink. The realization that it will never get any better. And, it is not just us, not just factory workers protesting on the streets. It is policemen, too, and sanitation workers, and farmers... and office workers and..."

"Yes, yes, I get it." Mr. Bhaduri said impatiently.

"The trouble is that you don't get it," Tanisha argued as she walked over to a chair on the opposite side of his desk.

"Well, maybe they should go back to work, then." He was feeling even more guilty now... and angrier all the more because of it. "And what can I do about it anyway. I told you, my hands are tied."

"But, Mr. Bhaduri, there is a way," Tanisha said, as she gripped the back of the chair with both hands, leaning forward over it. "There is a way," she repeated, "if you will join us in our fight against the big corporations."

Mr. Bhaduri looked at Tanisha in astonishment. "What? That is crazy. It makes no sense. Why would I do that? I will surely never get business from them again if I stand with you."

"It makes perfect sense. Just think... think what would happen to GAP, or Walmart, or Nieman Marcus, if they couldn't get any more dresses... from anywhere?"

"Yes, I agree, that would be a disaster, but it won't happen. They will contract with someone else. There will always be someone willing to take advantage of the situation and take business away from me."

"Maybe so. Maybe we won't get everyone, but if we can get enough factory owners to see the advantage of standing with workers, having the power to negotiate terms that are fair... fair to all, they will do it. The rich corporations and the colonial governments that back them will see that we will no longer accept business as usual." Tanisha gripped the chair back tighter and leaned further forward, looking straight into Mr. Bhaduri's eyes. He stared back, waiting.

Tanisha straightened up, still holding onto the chair back. "I do not blame you, Mr. Bhaduri. I understand your predicament. You are doing what you have to do to survive. But you are just passing

your pain onto us. You are not solving the problem. We must solve the problem - together. The problem is greed. And there is no better time to change things. People all over the world are protesting. They want to strike down the old order and sweep it away... forever, and create a new order that is fair. If we act together now, and fight for what is good for all of us, not just for the rich... we can make a better world."

Mr. Bhaduri sat back in his chair, his eyes opened wide, staring at Tanisha, considering her proposal. She was right, of course, he knew it. He and all the other factory owners in Dhaka had said much the same thing, railing against the big retailers about their strangle-hold over small businesses, and how they pitted the factory owners against one another - competing for the same jobs, forcing them to discount their bids in an effort to save contracts, or forcing them to accept jobs at a lost just to hold onto a retailer.

The factory owners were enabling them, knew it, and could do nothing. They had no leverage. It was crazy. It sounded crazy when Mr. Bhaduri said it to himself. As long as the factory owners fought among themselves and remained divided, they could never change anything. They could never make things any better than they were. He had to admit, improving conditions at the factory would make his workers happier, and if they were happier, they would work harder, be less trouble, and make more money for him. But the factory owners could not bring themselves to work together because they did not trust one another. Status, insecurity, and greed were powerful drivers keeping them from cooperating. There would always be a factory owner willing to undercut a competitor to enrich himself or become more secure.

But, there was also something else in Tanisha's argument that made Mr. Bhaduri uneasy.

"You talk of making decisions together for the benefit of all. Surely you are not suggesting that we be equal partners in this business?

"I am only suggesting that the workers have more say in operations. Whether that is through cooperation, profit sharing, or partnerships, or through union bargaining... I cannot say, but the workers are not just a tool, they are an important part of the business, and they should have a say in how the business is run".

"The workers do not own the business. I do. They did not put their life savings into this business. I did. If they want to run the

business, they can buy it from me. They do not understand business and therefore cannot make business decisions. I understand you wish better working conditions and higher wages, and I would like to provide them if I can, but better conditions are not your right, but an act of my generosity. You have no rights. You have work. If you were not satisfied with the wages I offered, you should have looked for work elsewhere."

Tanisha was disappointed at Mr. Bhaduri's attitude, but was not surprised. "And yet you feel it is your right to be treated fairly by the big corporations. You call them colonialists and say they are still exploiting you and treating you as an inferior. Why do we not have the same right to be treated with respect?

"If we do not understand the business, then teach us." Tanisha went around the chair and sat down in it, facing Mr. Bhaduri across the desk. She put her arms on the desk and clasped her hands. "We are not stupid people. But like it or not, we *are* partners. They cannot sell clothes without you, and you cannot make clothes without us. We each have our part to play.

"And because the CEO's of those big corporations were lucky to be born into wealth, or influence, or education that you did not, does not make them better than you - just more blessed. It is no different with you. You grew up as I did, in the slums of Dhaka. But you had the good fortune to meet a man who gave you a chance.

Mr. Bhaduri was noticeably uncomfortable as he listened to Tanisha, shifting his weight back and forth in his chair. He could just argue back, vomit up the same old litany of reasons the rich always gave, as to why the workers were doing no better than they were - they were lazy, lacked ambition, not smart enough, not clever enough, lacked the entrepreneurial vision - but he knew that was all just bull, just excuses. He knew the system was inherently unfair and favored the rich, the powerful, the well connected.

"How many times have you asked me for advice? Tanisha continued her lecture. "How many times have I gotten you through a tough spot... saved a contract for you. Maybe saved your business. Maybe I could run this business as well as you... But you will never give me that same chance. Maybe there are many people working for you who could also run your business as well as you... But you will never give them the same chance you were lucky to have. You know nothing about the people who work for you - their lives, what they know, how they can help make this a better business - except

that they can sew clothing. You fear them. It is true we have not put our own money into your business. But, we have contributed our sweat, our labor."

"For which you are paid."

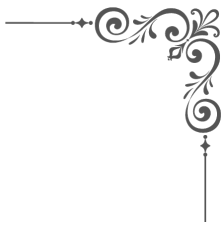
"But not near our worth to you," Tanisha added. "And so, you think that is all that there is to it? That is our total worth? Is that your total worth to the corporate CEOs? You send them clothes, and they pay you? What about loyalty, honesty, dependability, pride, reliability, efficiency, teamwork... helping you find solutions to problems?"

Mr. Bhaduri got the subtle hint.

"Without the labor and the pride the workers take in making your clothing, you would have no business." Tanisha was worked up now.

Mr. Bhaduri, whether out of fear of losing control or because capitalism was now too deeply a part of his worldview to let go, refused to be swayed by Tanish's impassioned argument. No doubt there was room for improvement, such as having more bargaining power with the corporate retailers, being accorded the respect he deserved, having a say in lead times, and being rewarded for meeting a tough deadline, but the fact was, he never would get that, and that was the way life is. He was a realist, a practical man. The factory owners would not be able to take on the big retailers and win. The situation wasn't perfect, but it had always been this way, and always would be.

As for the workers, he was the employer, it was his business, and they were workers. They were a labor expense, and it was his job to minimize expenses and maximize profits. He would help them if he could, but he was not going to risk his livelihood for them.



84

It was true, Mr. Bhaduri was a practical man. He believed things would never change. He was betting on it. Tanisha Sarkar, on the other hand, was a dreamer. She believed things could be better. She knew what was possible.

She had said little, at first, to Mr. Bhaduri about the true intent of this latest worker protest, waiting to see if he would be receptive to the idea of systemic change. When he seemed unwilling to let go of the capitalist socio-economic model, she decided not to enlighten him.

The protest now taking place outside his business and throughout the city was not simply an attempt to increase the bargaining power of factory owners and workers in Dhaka, but to expand it to include all of Asia, and integrate it into the Global Peoples Movement for an ecologically based society.

Tanisha's successful efforts to mobilize tens of thousands of garment factory workers throughout Dhaka to protest unjust conditions had caught the attention of James deBrum, Chairman of AOSIS. deBrum, the person who had delivered the Ultimatum in Ottawa, was busy bringing together thousands of worldwide protests by hundreds of millions of people into a Peoples Movement that was focused on taking down the modern capitalist system. He was impressed with her passion for workers' rights, justice, and equality, her intelligence, business sense, and leadership skills, and had reached out to her just after her worker walkout began, offering to help her reach the millions of garment workers spread

across Bangladesh and Asia. He hoped she could see how her fight for workers' rights was an integral part of the larger battle to achieve that vision.

He said he had a network of people who could help handle the logistics through social media, online communities, crowdfunding platforms, and other organizing and communication tools. deBrum echoed Tanisha's sense that this was the moment that would determine the fate of the human race. "It must be seized," he said, "if humans were ever to avoid extinction, and recognize and assume their rightful place as equal co-habitants of Mother Earth."

Tanisha had readily agreed to help, much to deBrum's delight, but she told deBrum that she wanted to try enlisting her employer in this fight. He knew a lot of other business owners in the city and had connections throughout Southeast Asia, by way of the many trade organizations he belonged to. deBrum had no objections to her attempting to recruit her employer, but doubted he would agree because he probably had too much invested in the capitalist system. They discussed the next steps in the expansion of the garment workers' protest and the critical part Tanisha could play in the global movement now underway.

Just as James deBrum had feared, Mr. Bhaduri, even when faced with the collapse of a system he had hated as a child, and acknowledged as inherently unfair, would not abandon it. He failed to be the ally Tanisha had hoped he would be, and so she pressed on, with deBrum's support, expanding the protest.

Over the following weeks, the protest spread across Bangladesh, India, Pakistan, Vietnam, and China, leading to an almost complete shutdown of Asia's garment industry. Garment factory workers all across Europe, Central and South America - those who had not already been protesting - walked out in solidarity with their Asian counterparts, virtually bringing the global Fashion Industry to a halt.

85

29 July 2029 Sunday
Yellowknife, Northwest Territories Canada

Russel Penkay was responsible for Land Integrity Oversight at the MycoArBoreal EcoComplex. His was a far different life now than the quiet life in anonymity he had been enjoying just two years ago. In those two years, the world had been turned upside down, and was now racing toward catastrophe - and he was in the middle of it, doing his best to keep it from happening.

Russel's job was to make sure that the lands on which the harvesting and processing of the White Birch Bolete took place - Dene Lands - were protected during operations. It was sacred land, of course, and had to be treated with respect and not suffer permanent damage. It was an enormous responsibility. He had help, though, in the form of an army of Dene First Nations People, who were everywhere on the ground, watching all operations, and reporting back any potential problems. And there were always potential problems.

The White Birch Bolete was beginning to pop up here and there, and harvesting was set to begin by the end of July. The Processing Facility in Yellowknife was not fully complete, but construction was expected to be finished about the same time harvesting was to begin. The gridwork of temporary trails within the EcoZone was complete.

The appearance of the Bolete was prompting many desperate

people to attempt to penetrate the perimeter walls and dig up the mushroom illegally. The remoteness and ruggedness of the area, and the paucity of roads, however, worked against anyone even approaching the EcoZone.

Security was also formidable. The perimeter fencing itself was electrified. Satellites monitored twenty-four hours a day. Helicopters equipped with infrared sensors crisscrossed the area regularly. Security cameras, infrared and motion detectors on the perimeter fencing, and inside, watched from every angle, and guards patrolled around the clock. Every entrance point was manned continuously.

It was also an enormous undertaking by the Canadian Government, in the midst of the spreading Peoples Movement, with its attendant food, fuel, and water shortages, electrical grid failures, and failing healthcare system. The citizens of Yellowknife were also demonstrating for change, but, because of the town's remoteness, its large Indigenous population, and its critical importance to anti-viral production, the protests were peaceful and largely symbolic.

The same physical features that made it difficult to approach the EcoZone made it just as difficult to protect. There were breaks in the fencing because of rugged terrain, mountains, lakes and rivers, bogs and swamps. It was always possible for a determined individual to get through, and there was no shortage of desperate people willing to take the chance to save a loved one. Hundreds were caught each day and escorted out. Few were arrested. Protesters, those part of The Movement, and under James deBrum's oversight, were ordered to leave the area alone, seeing no purpose in interfering with an operation that was trying to do some good.

There were others, however, who felt no such obligation. The same people who were to blame for the current state of affairs - the wealthy elites and those that served them, the politicians, were busy cajoling, bribing, and threatening anyone and everyone involved in the process of anti-viral production, from harvesting to shipping and distribution. Some were succeeding, going straight to the front of the line, either secretively or brazenly out in the open. No one cared about appearances anymore, or what anyone else thought. When you attain a certain level of wealth or power, you feel obliged to answer to no one. Wealthy governments in the Global North, those still holding together, were also participating in this ultimate act of avarice and self-interest, calling in chits,

applying pressure, or asking for favors in return for future repayment.

What worried Russel most were the wildfires. Forty-three hundred were actively burning across Yukon, Northwest Territories, British Columbia, Alberta, and Saskatchewan. Twenty-five million hectares had been destroyed so far. The whole of the MycoArBoreal EcoZone was vulnerable. It was an ominous start to what could be the worst wildfire season in Canada's history. Worse even than the catastrophic fires of 2023. In that year, six thousand wildfires blackened over 15 million hectares across much of the country, three times as much area as in any previous year back into the 1980's. This year, the total so far was already two-thirds the total for all of 2023, and the fire season was not even half over.

It had been an abnormally dry year so far, in the midst of a decade-long drought, exacerbated by an early snow melt and record high temperatures. Fifty-seven percent of Canada was in either moderate or extreme drought. The wildfire season was also starting earlier and ending later than in years past. Fifty years ago, the season was five months long, from April to August. Now fires could begin as early as February and last well into October. "Zombie" fires now burned over the winter, underneath snows, or underground in peat-rich soils, explosively reigniting when conditions dried out in spring.

This year, the season started in mid-March, with fires breaking out in the EcoZone from lightning strikes, but they were quickly extinguished. They were followed by outbreaks in Yukon, British Columbia, Alberta, and Saskatchewan. Authorities brought in bulldozers, excavators, water tenders, feller bunchers, fire trucks, helicopters, and air tankers. Firefighting supplies were in short supply, and Canadian authorities called for outside help.

In early April, more fires ignited as temperatures warmed further, humidity remained low, and winds picked up. The wildfires erupted furiously, growing out of control. Firefighters in every affected Province and Territory began fighting back. Air tankers and helicopters with water buckets began dousing the fires with water and fire retardants.

By May, little progress was being made. The fires continued to spread out of control, changing direction on a whim, keeping ahead of fire crews, while new fires broke out. Hot, dry, windy conditions persisted. Dense smoke billowed up to five miles into the sky, and

drifted east and south, turning the skies orange as far away as the UK and Florida. Ashes settled on beaches and backyards thousands of miles away. Breathing became more difficult, and people, especially those with respiratory problems, were asked to stay indoors. Help arrived from Australia, New Zealand, Mexico, South Africa, Portugal, and twelve other countries, in the form of personnel and pilots, air tankers, water bombers, night vision helicopters, and ground crews.

Officially, no help came from the U.S., previously Canada's biggest firefighting partner, because U.S. President Donald Trump, in 2025, had gone out of his way to insult the people of Canada and its Prime Minister by threatening to annex the country and make it the fifty-first state. Over the next three years, Trump continued to belittle the country's leadership and insult the people generally until the once-warm relationship between the two countries evaporated completely. David Wainright only added to the animus during his term.

Unofficially, however, many states, including California, Washington, New York, Minnesota, and Pennsylvania, did send equipment and crews to help with the firefighting.

New fires continued to break out during June, keeping fire crews, air tankers, and helicopters busy, as dry conditions stubbornly persisted, and the forecast was for continued drought and a record-hot summer. In any other year, this would not have been a big concern for Federal, Provincial, and Territorial Governments, but these fires now threatened the mushroom harvest set for later in the summer. Authorities were already worried that the record high temperatures would limit production of the anti-viral, maybe even prevent it altogether. Wildfires only added another layer of worry.

Little notice was paid at the time, but a small fire had broken out inside the perimeter of the EcoZone on 26 July, about 11 miles west of Yellowknife, about halfway between Route 3 and Stagg Lake. The fire was just one of three that had ignited from a lightning strike. Firefighters dispatched to the area found that one of the three had died out shortly after ignition, and they extinguished the other two. Within a few minutes, however, the first one re-ignited, then exploded into an inferno, engulfing tinder and several dead and dried-out trees nearby. The fire crew called for water immediately. By the time helicopters arrived with water

buckets, the fire had spread to 135 acres, driven by the wind. By the next morning, the fire had blackened 2500 acres and was still growing. Sixty firefighters, two bulldozers, and helicopter water drops were fighting hard to stop it.

Forestry officials, inexplicably, advised the people of Yellowknife to go about their normal activities, but check for advisories frequently. Understandably, people were nervous, but they trusted that the Forestry firefighters had the situation well in hand. The memory of the record-breaking wildfires in 2023 was still fresh in their minds. On August 19 of that year, the North Slave Fire came within ten miles of the city's western edge, forcing the evacuation of 19,000 people from the city and surrounding communities. The fire that year was stopped before reaching the city and, aided by cooler weather, extinguished. Everyone in Yellowknife hoped that the outcome of this fire would be no more disruptive than the one in 2023.

On the afternoon of 27 July, the winds began to pick up, and new fires broke out ahead of the leading edge. The smoke from the fires started drifting towards the city. At first white, the smoke began to turn black, indicative of a worsening crown fire. Crown fires pulled in more oxygen, creating their own winds, allowing them to jump from tree to tree, enormously speeding up their rate-of-travel. The updated weather forecast called for continued high winds, 15% humidity, and hotter temperatures for the next few days. A change in wind direction, blowing more from the north, was expected. That would push the fire south, putting Yellowknife directly in the fire's path. It could reach the outskirts of the city in two days. A State of Emergency was called by Fire Officials, although they stopped short of calling for an evacuation. The consensus was that they could still prevent the fire from reaching the city.

Fires are a natural occurrence in the Boreal Forest, historically burning through large stands every 60 to 150 years. The trees found there evolved with fire, and some, Black Spruce, Jack Pine, and Lodgepole Pine, in particular, are serotinous, that is, they rely on the heat from fires to open their cones and release seeds. Black Spruce is also highly volatile, and its low-hanging branches catch fire easily, allowing the fire to climb high into the crown, where the seed cones are located. The fire then jumps from crown to crown, efficiently setting seeds free to regenerate. Fire, at the same time,

kills the Spruce and clears the forest floor, allowing the new seeds to germinate relatively free of competition. Birch and Aspen, as well as shrubs, such as willow and blueberry, easily re-grow from underground roots or from seeds that blow in. Grasses, herbaceous flowering plants, mosses, and ferns re-colonize the ground layer as fast-growing deciduous trees begin to provide broken shade. As the forest begins to fill back in, animals, large and small, ground-dwelling and flying, return.

Warming temperatures caused by the burning of fossil fuels are profoundly changing the Boreal Forest. Fires are now occurring more often, sometimes in areas only recently burned. They are burning longer and burning hotter. Fire seasons are lengthening in the Arctic also, now nearly twice as long as they were thirty years ago. Boreal trees account for 70% of worldwide tree losses. The area lost to fires is increasing by about 5% year over year. Russia's Boreal Forest, the largest forested region on earth, lost a record 9.7 million hectares to fires in 2028, up from previous records of 5.4 million hectares in 2021 and 8.7 million in 2027. The permafrost, too, is beginning to thaw, threatening to release its immense store of carbon - 30% - 40% of all terrestrial carbon on the planet.

More worrisome, Black Spruce, though specially adapted to fire, is beginning to feel the impact of a too rapidly changing fire regime, a change it is unable to keep up with. Their place of dominance is slipping, and they are in danger of disappearing altogether. Fires that occur too often kill trees before they are mature enough to produce seeds, or fires that are too intense kill seeds either in the soil layer or in the tree tops.

The loss of Black Spruce would not only lead to a transformed ecosystem, one dominated by deciduous trees, it would also spell the end of a synergism between the trees and the fungi critical to the formation of the MycoArBoreal Complex that was producing the anti-viral critical to the health of countless newborn children, and ultimately, the continuance of the human species. What worried most experts was that the tipping point, the upper temperature limit of anti-viral production, might have already been breached.

86

On the evening of 28 July the fires north of the city quieted down. There was a collective sigh of relief in Yellowknife and a hope that the firefighters would gain control of it.

Russel Penkay wasn't so sure. He had been through too many wildfires in his life, and he was nervous. No rain was expected the next day, and the forecast was for low humidity and continued high temperatures. Russel was sure conditions were setting up for a crossover, and that wasn't good. Crossovers occur when a falling humidity and rising temperature cross the same point, like falling humidity reaching 26% and a rising temperature hitting 26 °C. That is the point when conditions become favorable for a flare-up. As the gap between the humidity and temperature widens, the scale tips further in favor of the fire. Winds increase, drawing in more oxygen, allowing the fire to climb higher into the trees. Once in the crown, there is no stopping it.

The firefighters knew this, of course, and were aware that a crossover would probably occur on the morning of 29 July. They widened all firebreaks, especially those to the north of the city and on either side of Highway 3, the only evacuation route out of the city. Other firebreaks were expanded where they could be, but the terrain made continuous firebreaks impossible. Although they didn't call for a general evacuation yet, they did tell residents outside of Yellowknife to leave. Everyone else was to shelter in place and stay close to their phones and radios for updates should the situation change.

It didn't take long for the situation to change. By late morning, the crossover occurred, and the fire exploded into an inferno. The ferocity of the fire was totally unexpected and caught everyone off guard. As the fire raced to the tree crowns, it created its own wind, drawing it forward toward the city.

The order went out over radio stations, phones, and social media for a mandatory evacuation immediately. First responders went into action, getting the city's 25,000 residents out. It would be the largest evacuation in the city's history. Those who needed to fly out were told to check with the Yellowknife airport. Schools were shuttered, and parents were told to pick up their children.

Stanton Territorial Hospital, already understaffed and low on supplies, was mobilized to evacuate patients. Medical staff, first responders, and volunteer civilians, using medevac vehicles and helicopters, planes, vans, trucks, and buses - even passenger cars and boats, rushed to get the critically ill out to other hospitals. The nearest were H.H. Williams in Hay River, and Northwest Territories Health and Social Services in Ft. Smith, both on the other side of Great Slave Lake, 100 miles and 175 miles away by car.

The City of Yellowknife Fire Division and North Slave Fire Management moved equipment and personnel to the airport, Stanton Memorial Hospital, government offices, and the Mushroom Processing Facility, to widen fire breaks and direct water outward toward the advancing fire line, and inward toward critical infrastructure.

Russel Penkay watched the towering clouds build to the north of the city from outside the Processing Facility. The orange glow from the fire reflected off the black clouds as they climbed higher into the sky, obscuring the sun and turning daylight into night. Embers and ash began to rain down around Russel. He knew it wouldn't be long before the fire reached the outskirts of the city and the Facility, or that falling embers might trigger another blaze. The Processing Plant was directly in the fire's path, straddling Deh Cho Blvd, just to the west of the airport runway.

Russel felt a sense of dread wash over him as he thought about losing the processing plant, and possibly the mushrooms - a year's harvest - and the many lives that would probably be lost because of it. He pulled his phone out of his back pocket and called Sadzee. He told her the Facility was being evacuated and that he was leaving to get her. She should pack up what she could, make sure she gathered

up their important papers - and their family photographs - and be ready when he got there. Their house was in Ndilq, near Old Town, on the tip of Latham Island, part of a peninsula jutting out into Great Slave Lake on the east end of Yellowknife. The island had long been home to the Yellowknives Dene First Nation. It was a lively, vibrant, and picturesque community that offered spectacular views of the surrounding forests to the north. Today, though, Russel worried the community he had grown up in would be, for all practical purposes, lost forever.

Before Russel could get to his pick-up, a fire truck sped in through the entrance gate to the Processing Facility, trailing a cloud of dust behind it, and came to a screeching halt about twenty feet from him. Dust billowed up all around the truck, and the light from the headlights danced off the dust and ash raining down. The driver threw open his door, jumped out, and sprinted over to Russel.

“The fire’s reached the airport, Russel!” the driver yelled, almost in a panic. “We’re doing everything we can to hold it back, but you need to go now! Everyone needs to evacuate now!” Before Russel could say anything, the driver ran back to his truck, jumped in, and sped back out, almost losing control as he passed out through the gate, and disappeared.

Russel called Operations and relayed the message, then rushed to his pick-up, jumped in, started it up, and raced out the gate, leaving a trail of dust behind him. As he turned onto Deh Cho Boulevard, fighting northbound traffic, and headed south toward the city, his headlights came on. The beam from the lights reflected off the smoke, making it difficult to see more than a hundred feet in front of him. The lights from evacuating cars passing him heading north toward Highway 3 danced off the blowing smoke, disorienting him. Ash and burning embers blew and swirled across the road, adding to the sense of other-worldliness.

Russel came to the end of Deh Cho Boulevard sooner than he thought, because of the poor visibility, chaotic traffic, headlights, and flashing lights from police vehicles. He almost missed the left turn onto Kam Lake Rd, and slammed on his brakes, sliding to a stop across the Boulevard in a cloud of dust, barely missing a car.

Russel sat for a few seconds collecting himself, then put the pick-up in gear and got back on the road. He raced into town, past the Rec Center and Arena, toward the intersection with Old Airport Rd, passing car after car coming from the opposite direction,

bumper to bumper, with ash and burning embers still raining down and blowing across the road.

> As he approached the intersection, the flashing lights from emergency vehicles suddenly appeared, and he again hit the brakes hard, coming to a stop barely ten feet from two fire officials standing beside an emergency vehicle. Both instinctively leaped backward to avoid being hit. Russel, wide-eyed and still gripping the steering wheel, blew out a sigh, thankful he didn't hit the men. He mumbled and cursed to himself in his native Dogrib. "Why do I live so far into town?" He was one of only a few vehicles going into town. All the others were either being directed to turn north onto Old Airport Rd or continue on Kam Lake. The intersection was a nightmare of cars, trucks, buses, emergency vehicles, and first responders directing traffic. Lights were flashing, ash and glowing embers were blowing around like millions of dancing points of light.

One of the fire officials, recovering from the scare, walked toward Russel's pickup. Russel rolled down the window.

"Russel!"

"Andrew! I didn't see you there." Russel replied.

"Yeah, it's crazy, right? You goin' into town?"

"Yeah, goin' to get Sadzee. How is the traffic getting onto the island?"

"Bad, Russel," Andrew replied. "Everyone's tryin' to get out. All jammed up at the causeway... but Robert is there, and some of the other guys. They'll get you through. I'll radio him so he knows you're comin'..."

"Majsi Cho, thank you, Andrew," Russel replied.

"...Well, you better get going, Russel, and I better get back to this traffic. They think the fire's goin' to jump across to the island any time now. Good luck."

"You too," Russel replied. "Stay safe." Andrew stepped back, and Russel started to ease out onto the roadway.

"Russel!" Andrew yelled before Russel could take off. "Use Taylor, here," he pointed, "then to Forrest. Franklin is crazy up ahead. You'll never get through. Use 52nd to get back onto Franklin further down."

“Thanks.” Russel rolled out onto the roadway, turned right onto Taylor Rd, and took off.

The smoke, ash, and burning embers were still filling the air, blowing and swirling in all directions. Vehicles were speeding out of side roads, their tires screeching, barely missing Russel as they passed him, disappearing behind dense black clouds of smoke, one moment visible, the next gone.

As he sped along, he passed one building after another enveloped in flames. He slammed on his brakes, then turned right onto Forrest. He passed the YWCA, then McKenna Funeral Home, both on fire, slammed on his brakes at the next intersection, and made a crazy left turn onto Burwash, barely missing a car coming at him on the wrong side of the road. At the end of Burwash Russel hit the brakes hard again to make the sharp left onto 56th Street. He went wide, going up onto the sidewalk, across someone’s front lawn, and back out onto the road.

Just as he straightened out and slowed to make the right turn onto 52nd Avenue, a truck screeched around the corner, nearly hitting him. Russel swerved to the right side of the road to avoid it, his body lurching forward into the steering wheel and then falling back against the seat, as he came to a stop on the sidewalk. After the truck passed, Russel pulled out from the sidewalk and made the right turn onto 52nd Street.

As he raced down 52nd Street, toward its junction with Franklin, the smoke began to thin, and visibility increased, but ash and bright orange embers continued to blow across the road, driven by high winds. The sun peeked out here and there from behind the smoke and haze, only to be lost again a second later. He passed scattered houses, and businesses engulfed in flames, and no one to put the fires out. Vehicles were entering 52nd Street from side streets, coming from homes, businesses, and hotels. Emergency vehicles, their lights flashing, were on street corners directing traffic through. As Russel passed through intersections along 52nd Street, he looked toward Franklin, a few blocks to the west, and could see that traffic there had thinned some. He hoped it would be clear by the time he reached it.

Up ahead, before 52nd made its slow turn toward Franklin, Russel saw flames and billowing smoke off to the left. It was either the Catholic School or the High School, he thought, maybe the Nova Inn on the corner of Franklin. He couldn’t tell. Fire trucks

were there, their lights flashing, pumping water - great streams arcing high into the air, spreading out as the wind caught it.

Russel slowed down going around the turn where 52nd turns into 44th, and stopped. An emergency vehicle and a police car were parked in the middle of the road, lights flashing. Up ahead, about 450' was Franklin Avenue. He could see that the fire was at the high school. Black smoke was billowing up from the roof. Russel wouldn't be able to get through to Franklin there. Ahead, to his right, was the Northwest Territories Public Works building.

Just before it was the entrance to the parking lot of the Skills Canada Technical School. He turned in and drove slowly to the far end of the parking lot. The sun was in and out as ash and smoke blew across in front of him, but he could see a narrow roadway going off to the left from the parking lot about a hundred feet ahead, and decided to try it. He turned onto the grassy knoll, navigated his way around holes and ruts, and turned left onto the road. He followed it as it curved around to the right and opened onto Franklin Avenue about one hundred feet north of the fire. As he turned hard right onto Franklin, Russel sped up and headed in the direction of Latham Island. He glanced in the rear-view mirror and could see the fire raging behind him and the flashing lights of fire engines.

Franklin Avenue was narrower here, but still, there was heavy traffic coming from the direction of Old Town and Latham Island. Black clouds were roiling upward, filling his view through the windshield, and he knew Old Town was on fire. He also knew there would be no one there fighting the fires. It was too dangerous and impossible to get off the island if the fire compromised the causeway. Red embers raced across the hood of his truck, propelled by an angry wind, and ash continued to rain down.

In Old Town, Franklin Avenue splits into three roads, one arcing around the north shore, one around the south shore, and one down the middle of the peninsula, all converging again at the northern end, at McMeekan Causway, a short roadway joining Old Town to Latham Island. As he approached the split, Russel could see that the northern and central roads were the busiest, so he turned slightly right onto the southern road and followed it around. Small grass fires, sheds, houses, cars, and boats, blowing smoke, embers, and ash were everywhere, making it hard to identify landmarks anymore. He had to go off-road in places, driving across front yards

and driveways to avoid evacuating vehicles.

All of a sudden Russel was at the turn to the Causeway. If it wasn't for the flashing lights of an emergency vehicle, he would have missed it and plowed into the traffic coming out. A first responder at the intersection threw up his hands and, again, Russel slammed on his brakes and came to a stop. He rolled down his window.

"Wait, Russel, till we get the bridge cleared," the man yelled.

Russel recognized Robert and waved to him. Robert signaled to the police on the other side of the Causeway to hold traffic. Within a minute, the Causeway cleared, and Robert waved Russel on to cross over. Russel nodded his thanks to Robert and turned onto the roadway, and crossed over onto the Island, waving to the police officers as he passed them. He knew them all, men he had grown up with and talked to almost every day. They waved back as Russel picked up speed and raced down Hearne Hill Road toward Latham Island Park. Trees and homes were burning on the west side of the island, and it looked bad.

He was beginning to panic now, hoping Sadzee was safe. Russel slammed on the brakes, turned right onto Otto, and followed it as it wound its way past Otto Park and out onto the east side of the island. The east side seemed more clear of fires, but there was still a lot of traffic racing out toward the Causeway. He had to go off the road constantly to avoid hitting cars and trucks.

Russel made his way onto Sikyea Tili, past the Dechita Training Center and Dene School, racing into the turn that would take him back to the west side of the island. "Why did we have to live all the way out here?" he angrily said to himself again, as he approached the fires. Trees were burning all the way to the tops, and the smoke became thicker, making it harder to see. Ash and embers were blowing across the road. Russel could feel the heat through the window as he passed a house on fire, and turned onto Tililo Tili. All he could see now was fire all the way out to the end of the island. An inferno - everything seemed to be burning. Cars were on fire, the tires releasing dense black smoke and toxic chemicals that boiled skyward. Transformers on the power poles were exploding, showering blue sparks onto the roadways beneath. Russel's heart sank, and he could hardly think straight as he raced to his wife.

One more block and he came to a screeching stop at the end of his driveway. His heart nearly jumped out of his chest, and his eyes

bulged wide at the sight in front of him.

His house was nearly consumed in flames, and the trees and shrubs in the yard were blackened cinders. There, in the driveway, with a hose in her hand, was Sadzee, trying desperately to put the fire out.

“Get in the fucking truck!” Russel screamed as he ran over to her and grabbed the hose, throwing it to the ground. Tears streamed from her eyes as she watched her home disappear before her eyes. Russel looked into her eyes, saw her terror, but he had no time to think about their loss. He had to get her to safety.

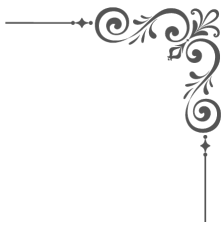
“Get in the truck, please,” he pleaded, his arms around her. “Please,” he said again as he pulled her back, away from the fire, and guided her to the truck. At the end of the driveway, she picked up the box of papers and photos and got into the truck. Russel closed the door, ran around to the driver’s side, and jumped in. They looked one last time at their home, and then Russel backed out and sped off.

One hundred fifty firefighters stayed behind in the city to fight the fire. It burned willy-nilly through the city, spreading south toward Great Slave Lake, and eastward across Latham Island, burning down structures seemingly at random. The southern edge of the fire burned itself out when it reached the Lake. The eastern front burned out of control for another five weeks, finally succumbing to rain and cooler temperatures.

Twenty five thousand Yellowknife residents escaped the deadly conflagration that day, and found safety and security, and generosity, in the homes of friends, family, and complete strangers, in towns like Ft Providence, Hay River, Enterprise, and Ft Resolution. People may have been rebelling against their government, but they still had compassion for one another.

Five hundred twenty-five thousand hectares of forest were destroyed, virtually all of it within the Complex. Experts estimated that about 12% of the harvestable area was lost. Two hundred fifty-five structures were destroyed or heavily damaged in the city. Many areas were reduced to ashes. The Processing Facility was heavily damaged but repaired and deemed operational by the end of July. Fifteen people lost their lives, three were children.

The severity of the fire was blamed on the astonishing heat wave, in the midst of a record warm year - a nine-day stretch of 40 C+ temperatures, culminating in 48.3 C on 27 July.



87

By the end of the decade, a new and significantly more dangerous era had begun, one with a greater amount of energy locked up in the atmosphere and oceans, which could be tapped into, to compound the effects of ordinary events, increasing droughts and lightning strikes, making wildfires more likely, increasing their number, intensity, and area burned.

Global temperatures had been trending upward since the late 1800's, but the rate at which they were rising, initially steady, began to accelerate in the early 2020's, from 0.15 ˚C per decade, to 0.3 ˚C per decade by 2024, to an astonishing 0.52 ˚C per decade by the late 2020's. An unusual spike in global temperatures in 2023, 1.56 ˚C above pre-industrial times, reinforced the following year by an average temperature 1.63 ˚C above pre-industrial times, affirmed that Earth's average temperature had, for all practical purposes, crossed the 1.5 ˚C threshold for the first time human history - a threshold every nation on Earth had agreed to stay under in Paris in 2015. It took less than ten years to break that promise. Although 2025 was slightly cooler, at 1.48 ˚C, temperatures rose again in 2026 as another El Niño developed, and stayed consistently above the 1.5 ˚C threshold into 2029.

Canada was not the only country suffering through another bad wildfire season. Thirty million hectares of Boreal forest in eastern Siberia were blackened earlier in the year, far surpassing the record 22 million hectares destroyed in 2003. Alaska's late spring wildfires burned 2.3 million hectares. Sweden had to evacuate 9

communities across the country and shut down rail services, as 78 separate fires burned across the country, many as far north as the Arctic Circle. Two of those communities were completely destroyed, leaving the residents homeless. Another long heat wave in Finland, the second of the year, with temperatures an unprecedented nine to eleven degrees above normal, contributed to the worst outbreak of wildfires in more than half a century. The worst was in the Kalajoki River Valley, in the northwest part of the country, an area that had been razed by devastating fires in 2021.

The heat waves not only exacerbated wildfires, but they were also deadly in their own right. In Russia, 55,000 people died of heat stroke in July 2029. In Western Europe, 89,000 people lost their lives by mid-year, from a heat dome that would not budge. In the last week of June 2029, 6,300 people died of heat stroke in Spain, 4,100 in Portugal, 9,550 in France, and 8,785 in Germany. The stagnant air raised air pollution to levels not seen in decades and contributed to severe respiratory complications, hospitalizations, and deaths. Between March and June 2029, the hottest months of the year in India, 3,580 people died nearly every day from heatstroke. During an exceptional five-day stretch of record heat in June, 31,357 people died.

A week-long heatwave across the East African nations of Kenya, Sudan, South Sudan, and Ethiopia in March 2029 added to the ongoing suffering from a decade-long drought. Temperatures reached 115F in Kenya, 124.5F in Sudan, and 120F in Ethiopia. The record-high temperatures in Sudan caused widespread power outages, as people tried to cool themselves with fans. At least 3,467 deaths were attributed to the heat wave, half of them children.

Arctic sinkholes, mostly in Siberia, but increasingly in Alaska and Canada, were becoming more common by 2029, from thawing permafrost that was destabilizing, allowing methane to escape explosively, leaving gaping holes. Scientists feared that the tipping point for permafrost thaw had been crossed, and that vast stores of methane gas, trapped beneath frozen ground for hundreds of thousands of years, might be finding its way to the surface. The amount of carbon locked up that could be released either as methane gas or as carbon dioxide by metabolizing organisms was enormous - 51 times the amount the world releases by burning fossil fuels in one year.

The Earth’s atmosphere was now holding more moisture than

ever before, becoming super-charged, and wreaking havoc all over the world. Monsoon patterns were shifting, becoming more erratic, more undependable, and increasingly more destructive, causing floods and mudslides, and threatening crops over a vast region of southern Asia, including India, Pakistan, Nepal, and Bangladesh. Catastrophic flooding from persistent rains in Java, Indonesia, in May 2029, killed 1500 people. Mudslides washed away entire communities, leaving tens of thousands displaced, without food, water, shelter, or protection from disease.

Torrential monsoon downpours in June 2029 inundated large parts of India's most important agricultural region, the Indo-Gangetic Plains, submerging 7 million hectares of rice, destroying 75% of the crop for the year, leading to additional food shortages in already struggling, food-insecure populations. India was forced to rely on imports for the lost crop, but major interruptions to food supply chains brought on by the Pandemic and the worldwide Peoples Movement brought on famine.

In the United States, a slow-moving storm system in late summer 2029 flooded cities along the east coast, from Georgia to Vermont. An unprecedented 5.5" of rain per hour flooded sections of the New York City subway system, trapping tens of thousands underground for two days. The same storm brought flooding rain to much of Washington D.C. - an incredible 30" of rain in just twenty-four hours - causing the Potomac and Anacostia Rivers to overflow their banks, and overwhelm stormwater systems. All critical U.S. Government operations were moved to Mt. Weather Emergency Assistance Center. The city was occupied by more than one million protesters at the time, and U.S. President David Wainright refused to provide evacuation or rescue help, labeling them "terrorists and very bad people." 9,368 people died.

Catastrophic rain over a three-week period in central, eastern, and southern China, the worst in 120 years, flooded nearly 40% of the country. Rivers overflowed their banks, mostly in the Yangste River Valley, killing 23,000, destroying 123,000 homes, and leaving 173,000 people homeless. Hundreds of thousands of acres of crops were destroyed. To save Beijing, the government released water from dams and impoundments, flooding rural communities to the south. People were outraged, accusing the government of deliberately sacrificing the poor, rural population to protect the affluent. The actions of the Chinese Government only served to

strengthen the resolve of the Peoples Movement in the country.

Much of Africa, in 2029, was in the grip of a drought that had lasted for twelve years. The drought was part of a long-term trend of desertification of the subtropics. The declining rainfall, coupled with increasingly extreme heatwaves, was pushing agriculture in the region to the brink of failure. Famine was widespread and commonplace. 590,000 people died from starvation in Somalia over the past two years. The children who were fortunate enough to have survived the Pandemic were now starving to death. 580 million people throughout the region were chronically undernourished. Millions were being forced to gather up what little they had and move on, hoping to find better conditions somewhere else. But there was almost nowhere else to go. Most countries in the region were also struggling through the drought, and none had the resources, security, or stability to accept refugees anymore.

In the southeastern Bay of Bengal on 20 January 2029, a depression formed that quickly developed into a major cyclone. Nisarga made landfall near Chennai, on the southeastern coast of India, four days later, with winds of 233 kmph, causing catastrophic flooding, a 9.3-meter storm surge, major structural damage, and 117,000 deaths. Seventy-three centimeters of rain fell in the first four hours, washing away roads and bridges, and inundating the city.

Three days after Nisarga made landfall, Tropical Cyclone Gatti, with winds of 392 kmph, devastated the coastal town of Mananjary, Madagascar, dropping an incredible 385 mm of rain and triggering deadly mudslides. The path that Gatti took followed closely the one taken by Tropical Cyclone Batsirai in January 2022. Gatti spread destructive flooding rain as it crossed the Island and emerged into the Mozambique Channel. Six hundred thirty-four people died, and 245,600 were displaced. That only added to the misery of this poverty-stricken nation, which was in the midst of a long-term drought that had ravaged the country and left 2 million people food insecure.

The first major storm in the Atlantic Basin was the fifth to develop. Emily quickly spun up into a Category Five cyclone in late June 2029, south of Cuba, crossed the western tip of the island, and made landfall as a Category Four storm just south of Houston, Texas. It brought destructive storm surge and flash flooding from 36 inches of rain.

Three days later, Category Four Hurricane Franklin crossed Long Island, New York, causing catastrophic destruction on landfall and, as it continued up into New England, dropped more than two feet of rain across three states. The west end of Fire Island National Seashore was completely washed away under twenty-one feet of storm surge, and five new inlets into Great South Bay were formed. Historic Fire Island Lighthouse was completely destroyed, and the Great South Bay Bridge was severely damaged. Hundreds of homes were destroyed or washed away up to six miles inland, while across the Island, hundreds more were destroyed or severely damaged.

By the end of July, eight more hurricanes made landfall on Caribbean islands, coastal Mexico, the United States, and Canada, causing destruction, loss of life, and misery that would have been hard to imagine a decade earlier. More hurricanes were reaching further north than ever before, were intensifying more rapidly, dropping more rain, and flooding further inland because there was so much energy available for storms to use. Ocean temperatures were the warmest on record, even in the North Atlantic.

New research suggested the AMOC (Atlantic Meridional Overturning Circulation) was now the weakest it has been in a thousand years, transporting just 70% of the water it did at its peak. It may have even crossed its tipping point, although that wouldn't be known for certain for ten years or more. The effect of the slowdown, however, was immediate, as it had allowed ultra-warm water to accumulate in the tropics, fueling ever more intense cyclones.

In May 2029, the concentration of CO2 in the atmosphere peaked for the year at 444 ppm. The Arctic was heading for a record low areal extent in September. The last time the atmosphere held that much CO2, or the Arctic was ice-free, was 4 million years ago, before modern humans existed.

Rain was falling more often in Greenland, and Thwaites Glacier in Antarctica was developing more fractures. Although new research indicated the glacier itself was more stable than once thought, it was still losing 50 billion metric tons of ice per year, threatening a two to six-foot rise in sea level by century's end.

It was now more clear than it had ever been that climate change was affecting every aspect of society, making life increasingly difficult, compounding every social, economic, and political ill, driving civilization toward inevitable collapse, erasing 400 years of

technological progress.

88

16 September 2029 Sunday
Yellowknife, Northwest Territories Canada

Sara Campbell started off the interview with AOSIS Chair James deBrum and Elder Russel Penkay, AFN representative.

"Global economies are nearing collapse," she stated, matter-of-factly, as if it were no more serious than a forecast for a rainy day. The interview was being carried live worldwide, on TV and radio, and live-streamed on all online platforms.

But it *was* more serious. In fact, it was a worldwide crisis.

Sara continued to set the scene. "Governments are losing control. Crops are being left to rot in the fields around the world because there is no one to harvest them. Food is disappearing from store shelves. Supply chains are broken, and electric grids are failing. Medicines and medical supplies are difficult to find. Elective medical procedures have all but ended, and clinics are closing. Diseases once under control are beginning to spread.

"In Africa, the Caribbean, and Southeast Asia, people are starving, running out of water, and caught up in civil wars, leaving hundreds of millions homeless, and exposed to increasingly deadly heat waves, droughts, and storms. Refugees, desperate for help, are left to die. Hundreds of thousands of children and infants are dying daily from the Pandemic, and the global population is falling. Hundreds of millions more, protesting their government's lack of urgency, are in danger from those very same governments."

Both James deBrum and Russel Penkay listened to the grim description in silence.

“Tragically, Ms. Campbell, your description is probably an accurate assessment of the situation,” James deBrum said.

Sara turned to James deBrum first. “Minister deBrum, what do you say to those who are accusing you of making the situation infinitely worse by calling for the continuance of what they term 'protests'? Do you think their reference to the Peoples Movement as just a protest is an attempt to discredit the Movement, and trivialize its fundamental importance to the continuance of humans?”

“Thank you, Ms. Campbell, for giving me the opportunity to address that point. I want to make it clear that they are not protests. They are infinitely more important. They are a global rejection of capitalism. They are a Mass Movement by all the Peoples of the World to end the injustices of a failed economic and governance system. The world was already speeding toward collapse long before the Movement. Billions of people were hungry and dying before the Movement. Before the Movement started, over 700 million people worldwide were food insecure. That’s almost 9% of the world’s population. Hundreds of millions were migrating to find food, work, and security. Before the Movement, more than 2 billion people were homeless or didn’t have decent living arrangements, 330 million were permanently homeless, and nearly one and a half billion people in the world lived in slums.

“There is not a person of wealth or power on this Earth who is not aware of that. Yet they continue to speed ahead, their foot pressing the accelerator firmly to the floor, blinded by their greed, to become even richer, even more powerful. Even today, they care little for the billions of people left behind, the billions that they purposely hurt. Now, those people are saying, ‘Enough! We have suffered enough. We will not accept this any longer.’

“If the people did not feel this way, Ms. Campbell, they would not be out on the street corners, in government buildings, at corporate headquarters, or on the docks, voicing their outrage at how little their leaders cared about their lives, and the lives of their dying children. They are questioning the legitimacy of governments that can ignore the needs of those they are supposed to represent and swear to protect.

“Yes, the people are struggling now. They are hungry, and many are dying, and my heart aches for them. But my heart has been

aching for them for decades. We are not to blame for their suffering. We have merely focused their outrage on who is to blame. It is the rich, propelled by greed, power, and indifference, who are to blame. It is the rich who control the flow of money through the capitalist system, and it is the rich who have rigged it in their favor. The people know this, and they know the rich have no interest in fairness."

"Minister deBrum, at the same time, you've been working very hard to get nations to sign on to the Peoples Agreement, so that the world can begin a new relationship and address all these crises. Can you tell us how much progress you have made? How many nations have accepted this transformation to a socio-ecological system of world governance?"

"As you can imagine, it is not an easy thing to do, to get every country to agree on anything, much less a uniform system of governance."

Everyone smiled.

deBrum continued. "The People are demanding a truly democratic system, where the people of each country vote on all matters that concern them. That has never happened before. But we now have fifty-three nations willing to try."

"Fifty-three," Sara repeated. "One fourth of all the world's countries. But, most of those are island states - the Solomon Islands, Fiji, the Seychelles, and your home, the Marshall Islands... and poorer countries, in Africa and Southeast Asia - Niger, Botswana, Ghana, Nigeria, Bangladesh, - much of the global south. Those are nations you'd expect to be among the first to accept the Agreement. The countries that have been most severely affected by the Pandemic, climate change, social injustices, poverty, and civil war."

"You are quite right, Ms. Campbell," deBrum acknowledged. "Those have always been the nations that have been pressing for an end to fossil fuels, for equality, for an end to colonialism, because colonialism still has not ended. It exists even today. Not in the form it did in the 18th and 19th centuries, but in much more subtle and sinister forms, through the economic and political pressures still exerted today, through hegemony, through debt, unfair trade practices, tariffs, labor exploitation, and raw materials extraction."

"Do you think you will be able to get nations from the global north to sign on?" Sara pressed. "I mean, they are already doing well. They have a greater standard of living and more financial and

material wealth. Do you think they will be willing to give up some of that wealth to poorer countries? They haven't been willing to do so in the past. What makes you think they will be more willing now?"

"Two reasons, Ms. Campbell. First, as I just mentioned, the world's leaders were well aware the world was on the road to collapse before the Movement started. They have continued to deny it in public, but, in private, they have accepted it. They know that if they do not transition now, in a controlled fashion, it will be taken out of their hands in twenty years, when collapse becomes unavoidable. The rich think that somehow they can ride it out, outlast the bottom 90%, but they cannot, because it is the bottom 90% that support them. They are on a fool's errand.

"Second, they are currently under strong pressure to change by that very same 90%. Their own citizenry - their own population - wants change - demands change. Social movements are strong motivators," deBrum replied.

"The combination of these two forces is making it more likely countries will reconsider their position, despite pressure from wealthy elites, and sign. I don't think it is possible any longer to refuse. That is why many more socially progressive nations, like Finland, Denmark, Norway, Sweden, and the Netherlands, have already agreed to sign the People's Agreement. These Nordic countries have more advanced social welfare programs, the people have more trust in their governments, greater equality, and more satisfying lives. The transition will not be difficult for them. There are other Western European nations - Switzerland, Germany, France, Austria, for example, that have also expressed a willingness to sign, especially if the Nordic block does."

deBrum continued. "You mentioned island nations earlier, and their eagerness to sign on because of their vulnerability and lack of financial backing to mitigate the effects of climate change. They are in good company, because larger, more wealthy island nations - Ireland, Iceland, Singapore, and New Zealand - are also vulnerable, and have all signaled their desire to sign the Agreement."

"At the same time," Sara said, "there are a great many countries whose governments are failing. Civil wars have broken out in Haiti, Iraq, Syria, Chad, Sudan, South Sudan, Yemen, Ethiopia. There are rumors that the king of Saudi Arabia will step down, that martial law has not worked. What happens when governments fail

completely, and anarchy takes over? There may be no group to negotiate with."

"That has not happened yet," deBrum replied. "We know that the overwhelming majority of people who are demonstrating all want the same thing - equality, fairness, trust, a reverence for nature. A group attempting to take advantage of the Movement to gain control of governance and then use it for selfish purposes will suffer the same fate as the government it helped topple. There is no advantage in trying that. It will not succeed, not in the current atmosphere. The people will not stand for it. Civil wars that were already ongoing, where there were competing interests fighting for control - Myanmar, Sudan, Niger, Ethiopia, Syria, and Yemen - were all absorbed and redirected toward either getting their government to accept the Agreement or replacing it with a representative body that will. Those countries I just mentioned - and others - have all since signed, or are expected to sign, the Agreement.

"There are going to be countries that will be difficult to convince, though," Sara stated.

"Yes, the United States, Russia, North Korea...

"And China?" Sara suggested.

"Yes, possibly China, but we have made progress there... thanks to a remarkable young woman in Bangladesh. She has transformed a local garment worker's strike into a region-wide movement for eco-social governance. China, Vietnam, India, Pakistan. China has by far the greatest number of garment factories in the world, and tens of millions of workers, so we've made significant progress there."

"What about North Korea and Russia? Do you see greater difficulty in getting Putin and Kim Jong Un to accept the Agreement?

"Of course. I doubt they will. Russia is pretty much at a standstill economically and politically, with enormous protests there. Martial law is having little effect. Much of the police and military have either joined the Movement or are standing down, refusing to fire on their neighbors. North Korea is much more tightly controlled, but the people there, too, including the police and military, have even more reason to want change. Most are poor, fearful... desperate, with a deep, latent hunger for freedom. Kim will not be able to hold onto control as the country crumbles, has no outside help, and the people sense freedom is within reach."

“What about the United States?” Sara asked.

DeBrum nodded in agreement. “The United States, under its present leadership, will be more difficult, but there are signs, even there, that control is slipping.” James deBrum said.

“But, you can’t succeed without them on board,” Sara noted. “How hard will that be? The most powerful country in the world, now firmly authoritarian, with extraordinary wealth and natural resources, an unpredictable, autocratic President who has, in no uncertain terms, rejected climate change, and doubled down on expanding fossil fuel extraction. He has called the Pandemic a ruse by the Chinese. He is a racist and a firm believer in caste. The President is everything you are fighting against, and he’s not a man who backs away from a fight. The U.S. President has also declared martial law, and is not afraid to use the military against his own people.”

deBrum thought for a moment. “You are right, Ms. Campbell, we cannot achieve our goal without the United States. But the United States, with all its wealth and power, cannot go it alone in complete isolation. Although, as you said, it has enormous resources itself, it is now dependent on other countries... for natural resources, for rare earth metals, minerals, and for cheap labor, and food. In its current form, the United States would eventually collapse and would have to rebuild the country, restructure its entire economic model. That would be a monumental undertaking... and very risky. In any event, it seems the people are not in agreement with the President’s philosophy. Tens of millions are protesting his policies, and though he has declared martial law, it is not working. The people are not complying. The United States is in chaos right now, with no functioning economy. It remains to be seen how long it can hold out.”

Sara started to address Russel Penkay, but was interrupted by deBrum. “But, let me be clear, Ms. Campbell, as I said, we can not do this without the United States, but the People will not back down. The Movement will continue until all countries sign the agreement. If the U.S. fails to sign by the time all other countries have agreed, I believe there will be additional pressure from all the signatories for them to do so. I will repeat what I just said. The Peoples Movement will not end until all countries have signed the Agreement.”

Sara thanked James deBrum for his candid thoughts and then

turned to Russel Penkay. “First, Russel, let me say that I’m very thankful... and happy that you and Sadzee were not hurt in the fires in Yellowknife. I know that must have been a harrowing experience for both of you and for all the residents. Our hearts go out to all who went through the fire and to the families that lost loved ones.”

“Thank you, Sara.”

“We understand you lost your home, too, Russel. I’m so sorry. I know you and Sadzee loved that home very much. Will you be rebuilding there?”

“We did love it, Sara. It wasn’t big, but it had everything we wanted. And, yes, we will rebuild it. We’ll invite you and Gary up when it it is finished.”

“Thank you, we’d love to, Russel.” Sara glanced down at her notes for a second, then looked back up to Russel. “The mushroom complex also experienced damage from the wildfire? How much, and will it affect operations?

“The Facility was damaged, but the extent was minimal, thanks to the Yellowknife Fire Department, who worked extraordinarily hard, under very dangerous conditions, to protect the structures... and the city itself. People worked around the clock to get things up and running by the time the mushrooms began to appear.”

“A lot of homes and businesses were lost, though.”

“Yes, it was still tragic. A lot of people I know lost everything. Most of the homes on Latham Island burned. But, thanks to all those brave firefighters, it wasn’t worse,” Russel replied. “Large tracts of forest were lost also. 500,000 hectares. Over ten percent of the area inside the EcoZone was lost.”

“How will that affect the harvest?”

“Well... “ Russel thought for a moment. “Direct damage from the fire wasn’t significant, but the heat in general, the heat wave, did much more damage. This has been a very hot year, and it has affected the production of the anti-viral, something all the experts have been worried about. It seems we are skirting the upper temperature limit for its creation. Dr. Emma Harris and her team started sampling in August, when the mushrooms first started appearing. Hundreds of technicians spot checked all across the region, and found production to be spotty.”

“Will that make harvesting more difficult, checking first to see if the anti-viral is present before harvesting?”

“Quite a bit more difficult. They thought about that, but decided

it would take too much time and wouldn't be necessary, since they had to consolidate harvests from many areas anyway, before processing. So, they decided they would harvest everything, as planned. Each batch would be brought to a certain stage and tested. If it contained more than a minimal amount of the anti-viral, they would finish processing, extracting what they could, concentrating it, if necessary, and ship it out for distribution."

"Do you have any idea yet how much anti-viral was lost due to the heat wave and wildfires?"

"It is difficult to tell this early in the harvest, Sara. Each area is different. Some areas have high amounts of anti-viral, others very little. The forests further north fared better from the heat wave. But overall, we think we lost 50% of the anti-viral from the heat."

Sara's eyes opened wide in surprise. "That's an extraordinary loss."

"It is," Russel said, soberly.

"It is the clearest indication yet," James deBrum broke in, "what a truly precarious position we are in, and how easily we could slip into extinction. There is no guarantee that next year will not be hotter than this year, or that we will be any closer to a vaccine. In fact, we may never have a vaccine. If we continue down this path, we may shortly lose the technological ability to produce one."

James slid forward in his chair and looked straight into the camera. "Our species is now in decline from this virus. We are not able to replace those who are dying. We will not have another chance. This is Mother Earth's final warning. We have a small window of time left in which to save the human race, civilization, and all the beings we evolved with. If we fail to recognize that fact and act on it, we have no one to blame but ourselves."

The stark and ominous warning brought a wave of chills and goosebumps to Sara. She knew it to be true, but hearing it stated clearly made her feel it deep to her core. "I don't think anyone could misinterpret your warning, Mr. Minister. The people of the world hope your words will be heeded by every world leader and person of influence everywhere."

Sara thanked James deBrum and Russel Penkay for their time and ended the interview. deBrum had made it perfectly clear that all the world's leaders had had their chance to do the moral thing, the right thing, and if not the moral and right thing, then the smart thing, if they wanted to retain power. They had chosen not to, until

now. Now, it was up to the people. The people would decide. As deBrum said, the Movement would continue until all countries signed the Agreement. There would be no exceptions.

The Interview left Sara with a deep, nagging sense of dread and foreboding she had never felt before. It wasn't like the sinking feeling she got in the pit of her stomach the time she thought she had lost her purse with all her credit cards and phone inside, or even the feeling she got the time she and Dan thought they had been caught trying to smuggle Ismail, Aisha, and Amina across the border into Nigeria. This was different. More disturbing. A dread she could not articulate. The end of global civilization and extinction are concepts impossible to understand viscerally.

She was bothered by something James deBrum had acknowledged during the interview, that the United States had the resources to go it alone. True, deBrum didn't feel the U.S. would do so, but that did not make her feel any better. The fact of the matter is that the United States could become self-sustainable - able to provide all its needs for decades without outside help. It had the resources to do so... and it was halfway there. The U.S. had become a rogue nation, an oligarchy, supported and controlled by the rich, who were determined to keep the status quo. Its head of state was an autocrat, backed by a majority political party, a military that patrolled the streets, and a voting base with cult-like devotion. The opposition party was weak, demoralized, and ineffective. If it did isolate, the U.S. would still remain greatly influential and a potent threat to the internal affairs of every other country in the world.

It was critical to have the U.S. on board, but the likelihood of that happening, despite deBrum's optimism, was doubtful. And that was terrifying to Sara. She caught Russel before he left and asked him about it. Russel was worried, too. The United States had changed. Its population had turned inward, more isolated, become more selfish and uncaring, allowing outrageous injustices to become normalized. It no longer believed in science, truth, and fact, or respected its health experts or teachers. The people had stopped thinking for themselves, accepted lies, suppression of education, corruption, and racism. Russel was unsure the American people had the conviction and will to sustain the Movement. But he still believed in the People's Movement and the idea, and he was determined to continue to fight for it until the end.

Sara was also concerned about Gary's arrest and incarceration.

He was still awaiting trial, and no date had been set. She asked Russel if there was anything he could do to help free Gary? Although she knew Gary was innocent of the charges, she also knew the government wanted to make an example of him. She was terrified of what might happen to him. Russel felt bad about the arrest, and although Gary knew the risks when he got involved and accepted them, Russel had developed a personal friendship with Sara and Gary and told Sara he would talk to James to see what they could do.

89

By the end of September, 2029, signs of late stage societal breakdown were unmistakable. Basic necessities were disappearing. Barter was replacing money. Supply chains were broken. Most stores and businesses were empty, closed, boarded up, or abandoned. Transportation of any kind was difficult. Air travel was near impossible for the average person. Shipping, trucking, rail, and air freight were largely idle. Countries that were reliant on imports of any kind found themselves in trouble quickly. If those imports were critical, a country could find itself in crisis. Affluent nations were rationing and banning exports.

The health care system was crashing. Hospitals, emergency rooms, urgent care clinics, and medical offices, clinical and diagnostic labs, and pharmacies were closing, as supply shortages, lack of personnel, failing electrical grids, and scarce fuel expanded. Where health care facilities were open, lines were endlessly long, and treatment chaotic. People were dying waiting in line. Treatment for common illnesses and non-life-threatening conditions stopped. Cancer care, transplants, dialysis, and major surgical procedures were becoming increasingly rare, while deaths from treatable conditions surged. Outbreaks of measles, malaria, Covid, TB, cholera, and other infectious diseases were becoming common. Vaccines, insulin, chemotherapy drugs, and even common over-the-counter medicines were difficult to find, while black market and counterfeit drugs began to appear.

Although there was a dedicated supply chain, and personnel and

medical staff for the mushroom anti-viral, little was finding its way to children. The Pandemic was now claiming 99% of all newborns.

Food and agricultural systems, commercial fishing, and fish farming were failing. Water was becoming scarce in places. Supermarket shelves were emptying, and power blackouts led to food spoilage. Food riots were common. Where food was available, prices were nearly out of reach. People began hoarding. As large corporate farms failed, rooftop, backyard, community gardens, and small, local farms were springing up. Human and animal labor were replacing mechanized equipment in many places due to scarce fuel. Seed stocks were in short supply and hoarded. Fertilizer and pesticides ran out.

Local governance, courts, police, utility, and emergency services were shutting down. Lawlessness was spreading. Most governments were barely holding onto control. Cities were depopulating. Elites were fleeing to underground bunkers, secure communities, and sea-going cities.

Survival favored those who had basic skills - building, repair, fishing, hunting, gardening, first aid, survival, and self-defence. People were banding together to help one another.

In the global south, life was intolerable. Most populations had begun to revert back to pre-industrial life. Subsistence farming was spreading where possible. Malnutrition, starvation, and disease outbreaks were killing hundreds of thousands. Famine was widespread in countries dependent on food imports - sub-Saharan Africa, the Middle East, Southeast Asia. Roving bands of militias jockeyed for territorial or local control.

National boundaries were becoming diffuse, or disappearing altogether, as nations lost control of their borders. Populations were migrating internally and freely across national borders, looking for food and security. People everywhere, regardless of nationality, ethnicity, or cultural background, were beginning to band together for protection and common interests.

Droughts, wildfires, floods, heat waves, and cyclones added to the misery. The Yellow River Basin in China was again struck by terrible flooding in late summer from monsoon rains. Catastrophic fires raged uncontrolled across southern Europe, the western United States, Canada, Australia, and northern South America. Firefighting gear was hard to come by, and even if some could be found, there were no firefighters to use it.

Life was becoming precarious. The global population was declining.

The worldwide People's Movement seemed to have taken on a life of its own. It was difficult to know if there still remained any oversight, or whether the world's nations were even capable of negotiating a transformation any longer. Many governments had been unable to hold on to power and had been toppled. Others had devolved into civil wars and violence. Still others had suffered coups. Had the entire world completely unraveled? Was there any way back from this, or was it too late?

Remarkably, most nations were still communicating, still signing onto the Agreement. Small island nations had signed on first, of course. Every country in Africa except South Africa had agreed, and Cape Town was now signaling it would. Most of South America and Central America signed the Agreement in the third week of September.

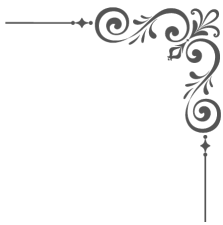
On the last day of September, 2029, the United Nations Secretary General called for, begged for, cooperation and compromise. He warned that time had nearly run out for the world. It was obvious the people were desperate for change. Without change, he pleaded, there would be no hope for a future for mankind.

No children were surviving the Pandemic now. Vaccine research was now taking place in only a few institutions around the world. Under present conditions, it was doubtful one would be developed in time. The anti-viral was teetering on failure. No one would survive - not even the rich. Starvation and death would take them also. Were they willing to accept that fate, be responsible for condemning their own children and grandchildren to starvation, and purposely ending their own lineage? Did they care so little for humankind that being responsible for its extinction meant nothing to them?

There were some bright spots. During the first week in October, India and Pakistan, bitter adversaries since the partition of India in 1947, reached out to one another diplomatically, promising to work toward a compromise that would enable them to share equitably water resources that flowed through both of their countries. France and Belgium called for speedy acceptance of the Agreement by the world's remaining nations and pledged support and aid to all nations needing it. They were quickly followed by the European

Union.

By month's end, 168 nations had accepted the terms of the Agreement.



90

19 October 2029 Friday
Beijing, China

The scene was one of jubilation. Two million people filled the Square and overflowed onto the surrounding streets, celebrating a victory of the human spirit. Tiananmen Square in the middle of Beijing was electric, the noise deafening. The Chinese government had signed the People's Agreement.

It had been forty years since protesters last made their voices heard in such numbers. In 1989, a million people gathered there, peacefully protesting for democratic reforms. The protest was brutally crushed by soldiers and armored vehicles, leaving many hundreds to thousands murdered. The Chinese government afterward sought to suppress all discussion about the protest and erase it from public memory. Authorities removed everything from the Square that would draw public gatherings and transformed it into a symbol of Communist Party strength. The square was fortified and encircled by iron railings, permitting access only through tunnels in each corner. Security checkpoints and closed-circuit TVs monitored activity.

But on this day, the mood was the polar opposite. It was celebratory. Triumphal. Festive. The weather was cool and dry, but pleasant, and the sky nearly cloudless. It was autumn at its most beautiful. The fall colors in the Forbidden City to the north were vibrant - the red leaves of the maple trees mixing with the brilliant

yellows of the ginkgos, as they drifted silently to the ground on gentle breezes. There were no tanks, no soldiers patrolling the Square. People were singing and dancing - embracing one another.

Tanisha Sarkar stood at the white stone balustrade on the platform of Tiananmen Tower, overlooking the Square, its enormity spreading out to the south, across Chang'an Street. She wore a white, insulated jacket, faded blue jeans, a ball cap, and white sneakers. She was transfixed by the image before her, overwhelmed emotionally by its meaning. She could feel the electricity in the air and the sense of hope in the crowd below, as she watched the celebration. To her right was a middle-aged Chinese woman, thin, with long dark hair, her face tanned and slightly wrinkled. With one hand, the Chinese woman shaded her eyes from the sun as she scanned the Square. She leaned toward Tanisha and whispered something to her. They exchanged smiles and went back to scanning the scene.

On Tanisha's left was Sara Campbell, in a red ball cap and red jacket. Behind her, Gary Sanders looked on in fascination, his hands resting on Sara's shoulders.

Gary had demanded he accompany Sara on her assignment to China, since international travel was becoming more dangerous. NBC agreed without hesitation. Eight days before, Gary had been released from jail by the Australian Government, the charges dropped, without explanation, but possibly due to pressure from Russel Penkay and James deBrum. On the same day Gary was released, the Australian Prime Minister announced Australia would accept the terms of the People's Agreement.

Behind them, across the platform of the Tower, and filling its interior, were people, hundreds, nearly shoulder to shoulder, shouting and laughing, and celebrating.

"You can feel it, Tanisha," Sara said, staring at the spectacle. "You can feel what's possible. It is amazing."

"It is," Tanisha agreed, emerging from her trance. She blinked a few times to bring things into focus and looked around.

"You must feel good about all this - what you've accomplished."

"I do, but I did not do all this alone. Hundreds of millions of people did this. People like Jing Li." Tanisha put her hand on the Chinese woman's shoulder. Jing Li turned her head and smiled. "Without them, it would not have been possible. They did not give up."

“The last time the people tried to reform the system here, it ended in a tragedy. This time, the people prevailed.”

“The people will always win... if they believe.”

“And stick together,” Gary added, looking out at the Square.

“James deBrum has nothing but praise for the way you made this happen. You started out in Dhaka, fighting for better conditions for garment workers. And here you are in Beijing.”

“The workers here in China, the workers all over Asia and around the world all want the same thing - fair wages, respect, fair treatment, good, safe working conditions, enough money to pay their bills and have a good life,” Tanisha replied. “They do not ask for riches. But they deserve to be treated as an important part of a business, not just a cost to be paid. It was not hard to bring people together. I just had to help them focus, keep encouraging them.

“I wanted very much to expand the Dhaka protest all across India, Pakistan, and Southeast Asia, but Minister deBrum showed me how our fight for better conditions for garment workers was the same fight workers all across the world were fighting. More equality, shared wealth, more respect for each other and nature. He asked us to be part of the Movement and said he could help. He thought we could win China, that all we needed were good people who could help me.”

“People like Jing Li?” Sara asked.

“Yes. Jing Li, and many people like her, worked hard to organize the Movement here in China. She knows the country, the people, what they want. She knew people in the Party who wanted change. People who were afraid to speak up before. She convinced them this was the right time.”

“So here in China, you started with the garment workers?”

“Yes, because we already had a big movement going across the South. People here knew about it. They were ready. So it was easy to get millions of workers to join the Movement. Then, with Jing Li, and a great many like her, we were able to bring in other workers. It just kept building.”

“The Movement, not long ago, was just a dream, a big gamble, Tanisha, but look what people like you and Gary, and tens of millions of others have accomplished. People have sacrificed so much, endured so much pain, but anyone looking at this celebration today can see that it’s been worth it.

“Yes.” Tanisha hesitated not a second to answer. She looked at

Jing Li, who nodded in agreement.

"Even if we do not succeed, it was right to try," Jing Li added. "We tried before, but we were stopped, because we did not have enough people. This time, we had all the workers, all the students, and teachers. We were too big to stop."

"If we did not try," Tanisha said, "life would still have become unbearable, we would still starve... and die. If we did not try, we would have no hope for a better life. Now, we still have a chance."

"What convinced the Chinese to sign the Agreement?" Sara asked

Tanisha looked to Jing Li. "Tell Sara, you know more of this than I do."

"A combination of things, really," Jing Li said. "The most important, of course, was that the government was facing enormous pressure from a population that would not back down. A billion people, almost. Using force against us was not really an option. It would only lead to a civil war they could not win, with millions dead across the country, a loss of everything they had achieved, and a population they would never really have control over. They would be constantly fighting uprisings for the next hundred years.

"The Party, too, is full of realists," Jing Li continued. "They also know well the kind of future we face if we do nothing about the Pandemic and the changing climate. The population will age, and with no births, it will then begin a long decline. We will face shortages in the workforce... society will collapse. They know all this. They just needed to rationalize and justify giving up control. There were many in the CCP - the Chinese Communist Party - who wanted reforms. They wanted them in 1989, too, but the time was not right."

"It is now," Gary said.

"Yes." Jing Li agreed. "It is now. The forces of nature have come together to make the decision easier. The moderates in the Party argued that the state has always presented itself as an ecological civilization, and that now is the time to prove it. The country is already the leader in green energy development. We make batteries, solar panels, EVs. The government owns the banks, so they control the money for the projects. Everybody is already concerned about air and water pollution. Workers are concerned about jobs and security. The change in government would advance the goals they already proposed. They could brag about the benefits to the people

- better health, jobs, better pay, higher standard of living, energy security, national prestige."

"China could be the international leader on environmental reform," Sara added, "an advocate for the poor countries of the Global South, form alliances with them to help mitigate against climate change. This could be the best chance yet for China to replace the United States as the most influential country in the world, especially since the U.S. President seems determined to take the country in another direction."

"He is wrong, and he is making a huge mistake."

"He misjudges the power of the people," Tanisha added.

"I hope you are right, Tanisha," Sara said.

"All the people want is more reform," Jing Li continued, "more say in their future. More of the economy could transition to government-social partnerships and co-ops, where the workers have a greater share in the decision-making process. The whole agricultural system could be transformed - more socially controlled and operated, more land co-ops and ecological practices.

"If the people had more involvement," Tanisha declared, "more responsibility in the operations, if they could have a greater share in the successes, it would benefit all. The wealth of the country could be shared by all. It would be a win-win for everyone."

"But, before we declare victory," Gary spoke up, "we need to remember - the US President said he is not going to sign. He told the world, 'fuck you. He said no one is going to tell the United States what to do."

"But, we have nearly every other country, Gary," Sara said. "And we will get the rest."

"I hope you're right, Sara. God, how I hope you are right. But right now it doesn't look that way."

"Shush, Gary." Tanisha put her finger to her lips. "That is tomorrow's fight. Today, let us celebrate this victory and be happy."

Sara was right about one thing. Nearly every country in the world had signed the Agreement by the day Tanisha and Jing Li celebrated in Tiananmen Square. Brazil's President signed in early October, along with South Korea, Uruguay, and Chile.

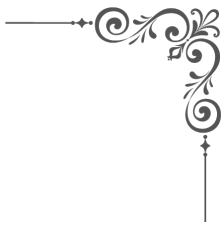
The people of Israel, sick and tired of war in Palestine, and sickened by the unrelenting genocide perpetrated by their own government, and forced starvation of human beings in Gaza, finally forced the old administration out, replaced it, and stopped the

carnage. The new government promptly signed the Agreement and, after the Palestinian people forced Hamas to disband, signaled their willingness to consider the establishment of a Palestinian state and the existence of two states in the region.

The Russian people toppled their Government, its President fled, but was caught in Hungary, then turned over to the World Court for trial. The interim government ended the war in Ukraine, withdrew its troops, and returned Ukraine's kidnapped children and POWs. The new government pledged support for Ukraine and promised to help rebuild.

It was a remarkable moment in the history of humankind. The fact that the driving force for it was the threat of extinction and pressure from a world wide Movement of billions of angry people did not go unnoticed. In the next two weeks, all the remaining countries would also sign.

All but one.



91

13 November 2029, Tuesday
Outside Helena, Montana USA

The black Range Rover Autobiography LWB exited Interstate 90 just outside Floral Park, Montana, and onto I-15, heading north toward St Peter's Hospital in Helena. Behind the wheel, Mark Lochridge was worried. He would have taken his private helicopter, but it was out of commission and, besides, his pilot had deserted him, left to join the Peoples Movement. Bad timing. His granddaughter was sick - had been for a few days - but was getting worse. Cathy Lochridge, who had been visiting their daughter at the time, was already at the hospital with Stephanie and son-in-law Andrew. Everyone suspected it was RSV, but no one said it.

The family had done all they could to protect the child for two years. Stephanie had received the maternal RSV vaccine Abrysvo when she was 32 weeks pregnant. She breastfed her daughter to avoid giving her contaminated formula or milk. Her pediatrician told her that breastfeeding would also deliver maternal antibodies to fight any virus she might come in contact with. The child even received a single shot of nirsevimab, a monoclonal antibody, before the RSV season in 2028. They were careful about visitors. Only family members were permitted to see her. Everyone who came in contact with the baby wore masks around her. They all washed their hands, sanitized, and disinfected everything regularly.

And yet the child still fell ill.

Mark did everything he could to get his granddaughter the anti-viral. Because supplies were limited and treatment was based on a lottery system selection, his granddaughter's name had not come up. Mark tried bribing officials, then threatening them, without any luck. He made phone calls to powerful political backers, but that, too, failed. They were too busy escaping the economic chaos brought on by the Movement to worry about Mark's problems.

Mark had just passed the Boulder exit and started the turn north toward Helena when the phone rang. The call came up on the screen on the dash - it was Frank Bartell.

Mark tapped the screen. "Frank."

"Mark?" Bartell asked.

"Yes, Frank," Mark returned, a bit irritated. He was doing 85 mph, weaving in and out of traffic, doing his best to avoid a collision. "Fuck!" He almost clipped the tail end of a GMC Terrain. "What is it, Frank? I'm on the road. Trying to get to Helena. My granddaughter is in the hospital."

"Jesus, Mark. Sorry. Just wanted to update you on what's going on here. I can call you back."

"No...no. What's going on there, Frank? Shit. Move, Goddammit!" Mark yelled at the semi in front of him.

"People are not happy with martial law. There's three million people here in Washington, and they're angry. Haven't done any real damage yet, but I don't think this is going to end well. The crowd broke into the Capitol. They've occupied all the offices and the House and Senate Chambers. Most everyone's gone, just the protesters here. They're carrying signs. They have the White House surrounded - from Lafayette Square to the Ellipse. Cross streets, too.

"They breached the security fencing?"

"Yeah. It isn't hard if you have a couple million people. The police couldn't stop them - or wouldn't. It happened too fast. One minute, they were all outside the fence; the next, they pushed their way in. All the police could do was get out of their way. The crowd didn't try to get into the White House, though. Just outside. The police surrounded the White House. No one can drive through anymore. People are holding a mock trial on the South Lawn. They're not leaving until the President gives in."

"That's not going to happen. He's never given in to anything." Mark was still passing cars left and right. "You know, he just doubles down. The National Guard there - around the White

House?"

"Yeah, the Marines too. They arrived about an hour and a half ago. More are coming. They pushed their way in and are around the White House, between the White House and the protesters. They also surrounded the protesters. They're all around them. Up and down 15th and 17th Streets, on H Street, and Constitution Avenue. They're not doing anything yet, just being deployed here and around the city. Armoured vehicles and tanks, too, I think. They're getting ready to do something ugly, Mark, once the President gets them all set up."

"The protesters have guns?"

"I don't think so, I mean, they probably do, but they're not out in the open. Nobody's waving guns around. They're not threatening anyone. They're just not going to leave. They're cozying up to the police and the Marines. Talking nice to them. Making friends. Mark, there are millions more all over the city." It was evident Frank was nervous. His voice was shaky, halting. "This is going to be a Tiananmen Square type showdown, Mark... only much worse."

"Frank, the people are breaking the law. They can't get away with it... the President can't let them destroy this country. He's got to put this freakin' uprising down, once and for all - all over the country. Put an end to it. Where are you, anyway?"

"I'm in my office. Listen, Mark, I think maybe we've carried this too far, I mean, making it harder to vote, carving up voting districts to get keep ourselves in power, controlling what we read, how we think, what kids are taught, I think James was right, he..."

"It's a bit too late to start feeling guilty, Frank. Don't wimp out now," Mark cut in. "They're not bothering you there, are they? You safe?"

"Yeah, for now. They're not threatening me. They just shut everything down. We can't do any business. But everyone's yelling, roaming through the halls. They're all over outside."

"Where's James?"

"I don't know. Haven't seen much of him in days. I think he's been meeting with some other lawmakers - some that stayed - trying to find a way out of this."

"What happened with the Governors last night. Did they see the President?"

"Yeah... I forgot. Yeah, they saw him. Blaine, Crawford, Sanderson, Waterford. Twenty were here to see the President, but

they had a letter...“

All Democrats?” Mark interrupted, his voice filled with disgust.

“Not all,” Frank replied. All the Democratic Governors were there, but there were twenty-two Republicans, too.”

“Fucking traitors. They’re going to regret it when this is over. I have to go, Frank. I just got off here in Helena. I’ll call you later.”

“Alright, Mark. I hope everything is okay. Say hello to Cathy.”

Mark got off I-15 onto Colonial Drive in the southeastern part of Helena. He drove north on Colonial to East Broadway, just east of St Peter’s Hospital. Within a few minutes, he was in the hospital parking lot. People were milling about on the roadside and street corners on the way in, carrying signs and shouting to cars as they drove by. The streets were littered with trash and garbage, and broken-down cars. Garbage collection had ended a month ago. Businesses were mostly closed, a few had been broken into. The doors and windows were broken.

The parking lot was noticeably empty. Not like Mark was used to. He could remember when it was nearly impossible to find a parking place. He would drive around for ten minutes waiting for a spot to clear. He even considered getting the hospital to give him his own space - or three, since he was the hospital’s biggest donor, but Cathy talked him out of it, saying that that was just too openly entitled. Most of the cars were parked near the building entrance. Papers and trash blew across the parking lot, got caught up under the wheels of cars, in the neglected landscape plantings, or up against the walls of the building.

Marked pulled up into an empty spot near the Main Entrance and parked. When he got out, the cold wind hit him like a hammer, biting into his cheeks and ears. He quickly zipped up his heavy Snow Mantra Parka and pulled the hood up over his head, then rushed toward the Entrance, passing very few people on the way - a far cry from the numbers he was used to seeing in the past.

Mark grabbed a face mask from his pocket and slipped it on as he passed through the Entrance doors. He quickly made his way to the elevators and impatiently pushed the buttons multiple times, cursing under his breath about the slowness of one to arrive. Finally, the bell chimed and the door opened. He rushed in and immediately punched the button to close the door.

He got off on the fourth floor and walked toward the Nurse’s Station. Cathy met him halfway there. He could tell she had been

crying. As soon as they hugged, Cathy started to cry again. She told Mark that the situation was grave and they were waiting for an update from the doctor.

As they entered the waiting area, Mark found it surprisingly quiet, not like it was even six months ago. Only the wealthiest of the region's parents could still afford to seek medical assistance for their children. Mark recognized a few, acknowledging them with nods.

Doctors, nurses, and technicians, the last of the medical professionals still staffing emergency rooms, were rushing back and forth between treatment rooms and the Nursing Station, doing what they could with dwindling supplies, attending to pediatric patients, giving shots, conducting diagnostic tests, checking vitals, and cleaning up. Doctors were providing updates to family members, conferring with nurses and other medical personnel, and in other cases, giving parents the worst news of their lives.

Marked immediately looked for Stephanie.

"Not here, Mark," Cathy said as she led him past the crowd and into a side hallway. "We have a private waiting area down the hall.

At the end of the hall, they turned into a small room.

"Daddy." Stephanie burst into tears when she saw her father and ran to him, falling into his open arms. He held her tight as she wrapped her arms around him and sobbed. Mark kissed her on the top of her head and looked at Cathy. She watched his eyes as they welled up with tears, but he held his emotions in check.

"She'll be fine. She's a fighter, Steph, and she'll get through this." He said the words, but only half believed them himself. Would she be fine? God wouldn't let her die. Maybe other children would die, but God wouldn't take his granddaughter. He had worked too hard, had sacrificed too much, had sold too much of his soul.

Mark held onto his daughter as they walked over to a couch. He sat her down next to Cathy and greeted Andrew, shaking his hand and holding it for a moment in both of his.

"I'll be right back. There's a phone call I have to make."

Cathy nodded. "Don't be long, the doctor will be here soon."

"I won't. I'll be right outside."

Mark walked out into the hall, made his way to a quiet corner, and made a call. It went straight to voicemail. Mark cursed under his breath, hung up before leaving a message, and dialed another

number.

"This is Carter," a monotone voice on the other end answered.

"Phil, this is Mark Lochridge."

"Hello, Mark, what can I do for you?"

"I'm trying to get Mr. Bornestein. He's not answering. I need to talk to him about the Safe Haven, he said we could..."

"There is no Safe Haven available, Mark."

Mark was taken aback, speechless for a second. "What, no, Jeffrey promised me he had a secure place for us to go to in case..."

"Mark, there is no place. I'm sorry. Mr. Bornestein told me to tell you they were all occupied. He can't..."

"But, goddammit, Phil, he promised me." Mark was hot and desperate.

"Sorry, Mark. I'm telling you they're all gone. You can't afford the price anymore. They're out of your price range. Mr. Bornestein regrets the change, but he can't do anything about it."

"Fuck you, Phil. He promised. After all I did for him, all I fuckin' went through. I delivered every fucking thing he wanted. I..."

"Well, Mr. Bornestein doesn't need you anymore, Mark," Phil said calmly, emotionless. "There's nothing more you can do for him now. Don't call again."

The line went dead.

"Fuck, fuck, fuck, fuck... Fucking bastard." Mark was in a rage. He raised his arm, started to throw his phone against the wall, then stopped. He cursed again at Bornestein, at the open and callous betrayal. He had been loyal, had turned his back on those he represented, broke the law, for the sake of money, security, and comfort. For the good life. He closed his eyes tightly and grimaced, then lowered his head, rubbed his forehead, and stood quietly for a moment, collecting himself.

Cathy suddenly appeared. "Mark! The doctor is here." She saw his face, knew something was wrong. "You okay? Mark?" She touched his arm.

Mark opened his eyes, stared at the wall for a second, then turned to Cathy. "Yeah, yeah... I'm fine."

"The doctor wants to talk to us."

"Right, okay," Mark said calmly. "Let's go."

The doctor was talking to Stephanie and Andrew when Mark and Cathy walked in. Stephanie looked at her father, her eyes drained of emotion. Mark and Cathy looked at the doctor, waiting

for him to speak.

“I’m sorry...” The doctor started.

Stephanie collapsed into Andrew’s arms. He held her close. Cathy sat down on a nearby chair. Mark continued to stare at the doctor, though he knew what was coming.

“Your little girl is very ill. It is RSV, we’ve confirmed it. We’ve done all we can for her...”

“Well, goddammit, do more!” Mark burst out. “Do more! I’ve given you hundreds of thousands of fucking dollars... and that’s all you can say!” Tears welled up in his eyes. Cathy got up and grabbed his hand, held it tight. Mark fell quiet. “Do more,” he repeated, softly.”

“We have, Mark. We have done everything we can. We have no anti-viral yet. It’s been very limited - much less than we had hoped. And we’ve exhausted every other option. She’s receiving fluids and drugs for pneumonia, and we have her on oxygen to make breathing easier.

“But, she doesn’t have much time left. We’ll make her as comfortable as we can. If you like, we’ll move her to a private room, and you can be there with her till the end.

‘I’m sorry, I’m very sorry we can’t do any more for her.

92

14 November 2029 Wednesday
Washington D.C., USA

The standoff between the protesters and the armed military on the south lawn of the White House was in its second day. The weather was overcast, but temperatures were in the mid-60s - pleasant for November. More than four million protesters had descended on Washington, D.C. for a showdown. Every square mile of the District was occupied. Traffic throughout the city was at a near standstill. Businesses were closed, government offices were nearly empty, Dulles International Airport was at a standstill. Most of the protesters were concentrated around the seat of government - the Capitol building, the White House, the Supreme Court - everywhere south of K Street, down to the Potomac and Anacostia Rivers.

Martial law was in effect, and had been for more than a month, as the Wainright administration attempted to tighten its grip on the everyday lives of its citizens. It was the final nail in the coffin of democracy, an escalation of the illegal and unconstitutional deployment of the National Guard and U.S. Marines in American cities around the country, which had begun in 2025, under the Trump Administration, ostensibly as a “solution to out-of-control crime,” but in reality, was another step toward establishing an authoritarian regime.

During 2026, sporadic local protests and federal court orders

were blocking his deployment of troops, but Trump blatantly ignored the court orders, knowing the courts had no means of enforcing them. Trump just stepped up the deployment of troops to additional cities.

At first, there were no cries of outrage from his own party, nor from the country's Supreme Court, which decided in Trump's favor with each appeal, or even from the American people, as a whole, who could not bring themselves to believe democracy could really be lost. In less than two years, Trump had suppressed opposition voting through intimidation and regressive voting laws, brought the legal system under his purview, and controlled the streets with armed military and secret police. Political foes were harassed, threatened, and imprisoned, educational institutions and the press silenced.

Only in late 2028, after David Wainright's election, in the midst of the Pandemic, did cracks begin to appear in the Administration's stranglehold over the public. Frustration at the lack of progress toward the development of a vaccine transformed into anger after the failure of COP33 in February 2029. Public dissent grew, and the imposition of martial law later that year by Wainright only exacerbated the public's anger, resulting in open defiance. Riots and protests broke out. Attempts at heavy-handed suppression by Wainright failed to end the spreading protests, and more brutal measures only prompted the rise of the People's Movement in the U.S. Wainright had crossed a line, and the Movement challenged the authoritarian regime's control.

The Administration, however, had misjudged the impotence of the people and their willingness to accept the anguish of the Pandemic. It miscalculated the level of oppression needed to hold the protests in check and allowed them to get out of hand. To regain control, Wainright threatened to crush the Movement with military brutality and "would kill every last dissenter," if he needed to. Today, he promised, he would make an example of the "terrorists" outside his window. He would end this assault against his Administration today - one way or another, and it would serve as a warning to protesters across the nation, that he would murder American citizens, by the thousands, if he had to, to restore control.

Wainright had given the people until 6 pm to disperse, or they would face the deadly force of his military. He thrived on conflict and seemed to revel in the raw and unchecked power he had over

the lives of millions. He could order their deaths, he said, if he decided the situation warranted it, and would not be held accountable. The Supreme Court said so.

It was 5 pm.

Six hundred thousand protesters still occupied the 82 acres of White House grounds, the President's Park, and the Ellipse. Outside the perimeter fencing, from H Street NW on the north side, to Constitution Avenue on the south, and from 17th Street NW to 15th Street NW, were fifty LAV-25 light armored vehicles and 10,000 marines in combat gear. The armored vehicles carried a 25mm M242 Bushmaster chain and two 7.62mm M240 machine guns. Each marine carried an M27 Infantry Automatic Rifle, with live ammunition. The Marines stood silently, close-ranked, their rifles hanging across the front of their bodies on a sling, their hands at the ready. The Marines also completely encircled the White House, guarding against any attempt to gain entry.

Wainright sat at his desk in the Oval Office, a large, wide-screen TV set off to one side. His Chief of Staff, Secretary of Defence, Secretary of Homeland Security, U.S. Attorney General, FBI Director, and a few close aides watched intently, the scene unfolding outside, from couches and chairs around the room.

Wainright looked down at a mobile phone lying on his desk and spoke into it. "General Gage?"

"Yes, Sir, Mr. President." General James Gage said, his voice loud, sharp, and clear. The phone was on speaker.

James Gage was a four-star general and the Marine Corps' top-ranking officer. He was a thirty-eight-year veteran, had started his career as a Private in the Corps, and, after an initial tour, went back to school, earned a Bachelor's Degree, and returned to the Marines as a commissioned officer. He was a Medal of Honor recipient, a no-nonsense, by-the-book officer who had seen combat in the toughest of places. Gage was respected by fellow officers, loyal to his men, and was, in turn, highly respected and loved by his troops. He was a firm believer in following orders no matter how difficult, because, especially in combat, they could mean the difference between life and death.

Wainright, his hands cupped together on the edge of his desk, leaned into the phone. "I think I have been patient enough with these terrorists. I've given them weeks and months to stop, to go home. I told them. I want you to tell them they have ten minutes to

start leaving or they will be treated as hostile insurrectionists and they will be fired on."

There was no immediate response from General Gage. The people in the room looked at each other, but said nothing.

"I told them, didn't I?" Wainright looked up at the people in the room. "Didn't I?"

"Yes, sir, Mr. President," his Chief of Staff quickly responded. Everyone else remained quiet.

"General Gage?" Wainright leaned back over the phone. "Did you hear me?"

"Yes, Sir, Mr. President. I heard you. But they are unarmed, Sir."

"I don't give a shit. They are enemy combatants trying to overthrow the government of the United States," Wainright shot back. "Warn them. That's an order."

General Gates hesitated for a moment, then responded. "Yes, Sir, Mr. President.

General Gates, standing atop one of the armored vehicles, picked up a microphone and told the crowd to leave. He said if they did not, he was under orders from the President to shoot.

As the order filtered through the crowd, the protesters grew deadly quiet. The hundreds of thousands of people outside the fence fell nearly silent. The Marines standing guard looked at each other nervously. They looked around at the people nearest them inside the fencing. Eyes fixed on each other from both sides of the fence.

The People's Movement was facing its most difficult test.

Not one person left. The protesters stood silently staring in the direction of the White House as the time ran out. Someone near the front of the crowd raised a large placard high overhead. It read "Freedom - Life - Equality - Justice." Another sign went up overhead. "We are your neighbors, we are you."

More signs went up, until there were hundreds.

"Freedom - Life - Equality - Justice."

"Gates," shouted Wainright's voice over the phone.

"Sir?" Gates answered as he stared at the placards.

"Time is up. Pick one person out of the crowd and shoot him in the head. The rest will go home. If they don't, shoot one more. They'll go. I want this ended now."

General Gates held the phone to his ear but said nothing as he looked out over the crowd.

"Do it, Gates. Do it," demanded the President again.

Gates hung up the phone. He unholstered a pistol at his side and walked over to the crowd of protesters. He stopped when he was just a few feet away. In front of him was a middle-aged man holding one of the signs in front of him. “We are all in this together,” it read. Beside him was a teenage girl, holding onto his arm.

The man stood still, looked down at the pistol General Gage held at his side, watching his finger move back and forth, from trigger to stock. then looked back up and into the eyes of Gage. For a moment, their eyes locked and they stared deep into one another.

General Gage looked down at the girl, expressionless, giving no indication that her presence mattered. He had his orders. She looked back at him, waiting.

Gage stared at the man in silence. He then raised his gun, holstered it, and walked back to the armored vehicle. He picked up the microphone and raised it to his mouth. “Stand down,” he shouted into the mic. “These people have done nothing wrong. Stand down and lower your weapons. Withdraw from the city.”

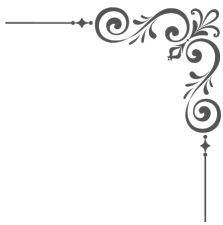
“Gates ... Gates,” Wainright screamed repeatedly. “You fucking traitor, I’ll have you shot. You bastard!”

The crowd outside erupted in cheers. People danced and hugged each other. They laughed and cried.

More than anything else, General James Gates believed in the Constitution, the rule of law, in justice. He believed no one should have unlimited power over others, and no one was above the law.

Within hours, Wainright was forced to resign. A bipartisan group of Senators and Representatives, led by Senator James Ruston, presented Wainright with an offer he could not refuse. His Vice President, the House Speaker, the President Pro Tempore, and all Cabinet members were also forced to tender their resignations. The details of the resignations were never made public. Later that night, a call went out to all members of the House of Representatives, requesting them to make themselves available early the following morning to elect a new Speaker of the House, and by extension, a new President, replacing Wainright.

Remarkably, the next morning, a quorum was achieved, and a temporary President was sworn in. Her first act as President of the United States was to sign the People’s Agreement.



93

1 February 2030 Friday
The Hague, Netherlands

All the nations of the world had signed the People's Agreement Creating a Just System of World Governance.

Delegates from all the world's nations gathered at the Hague, on the North Sea coast of the Netherlands, to begin the work of building a new world. The Hague, known as the "International City of Peace and Justice," was a fitting choice. Fitting, as well, was the choice for deliberations. The Peace Palace housed the Permanent Court of Arbitration, and the International Court of Justice, and, as a symbol of Sustainable Development Goal 16, Peace and Justice, had been the site of many international meetings on the United Nations Sustainable Development Goals program.

The Delegates from each country were chosen through sortition, picked randomly, but with regard to representing a fair demographic cross-section of the population. They would be charged with developing the framework of a new system of World Governance. The decisions they would make on any issue would be dictated by a prior democratic vote of the respective country's citizenry on that issue. None of the delegates were chosen based on party affiliation or prior political experience.

No one believed the creation of a new system of world governance and economic system would be easy. There were enormous problems to solve, disagreements and differences of

opinion to work out, and mistrust to overcome.

The Peoples Movement was suspended. People went back to work, and businesses opened. Supply chains began to reconnect. Trade resumed. Hospitals, clinics, and medical offices resumed treating patients. Farmers began to grow crops, and ranchers started raising livestock once more. Electrical grids powered up. Educational institutions opened their doors, and banks loaned money. For those nations that suffered before and needed help, loans were forgiven, and wealthier nations stepped up.

All the same problems that existed before the Movement still plagued the world, though. They hadn't miraculously disappeared just because the world came to its senses. The Pandemic still raged. The anti-viral was still in short supply and threatening to shut down. The development of a vaccine was still in the future.

The Earth was still way out of energy balance, and there was a great deal of inertia built up. The world would still continue to heat up, wildfires would still continue to burn, the seas would continue to rise, and most of the coral reefs would still disappear. The Earth had already passed 1.5 ˚C, was close to 2.0 ˚C, and would probably reach 2.5 ˚C by 2040. Even if fossil fuel burning stopped immediately (which couldn't happen), equilibrium might still be near 3.0 ˚C.

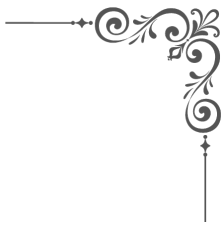
And then there were those tipping points. The catastrophes that nudged the Earth into an irreversible new equilibrium. The Greenland ice sheet was already past that. Maybe the West Antarctic ice sheet. Anti-viral production was teetering on the edge. The AMOC was close. The coral reefs.

Life was still going to be tough for quite some time.

It was crucial for the world to be serious about the transition to a new system. Priorities had to be established and timely goals set - and adhered to. James deBrum was under no illusions about how easily everything could fall apart. Elites were still waiting for an opportunity to regain control. He knew vigilance was crucial to success - and immediate recourse. He had a backup plan just in case.

In the end, the People believed in the possibility of a better, more just world, and they fought for the chance to make it so. They promised to work together to build a world where everyone mattered, where all life mattered, and where Mother Earth would be respected. The world had stepped back from the brink.

Only time would tell if humanity would live up to its promise to follow a new way of living - a new Paradigm.



Acknowledgements

The core philosophical and legal framework of this novel is deeply indebted to the **Peoples Agreement on Climate Change and the Rights of Mother Earth**, a landmark document born from the **World People's Conference on Climate Change** held in Cochabamba, Bolivia, in April 2010. The excerpts featured in Chapter 72 —which serve as the template for the Global Peoples Mass Movement's ultimatum—are drawn directly from this historic manifesto and the accompanying **Universal Declaration of the Rights of Mother Earth**.

These documents represent the collective wisdom of over 30,000 representatives from social movements, Indigenous nations, and global civil society. By weaving their words into the narrative of this book, I intended to honor their call for a systemic shift in how humanity relates to the natural world. This novel explores a world where these principles are no longer mere aspirations but the foundation of a new global governance.

I would like to express my deepest gratitude to the activists, thinkers, and delegates whose tireless work in Cochabamba provided a roadmap for a future that prioritizes life over profit. Their vision of *Vivir Bien*—living well in harmony with nature—is the heartbeat of this story. While the events of this novel are a work of fiction, the "Agreement" used by my characters is a very real invitation for us all to reconsider our place within the Earth's boundaries.

The quote on the page before Page 1 is from the screenplay

Absolon, 2003, written by Brad Mirman.